

OCTOBER 1915

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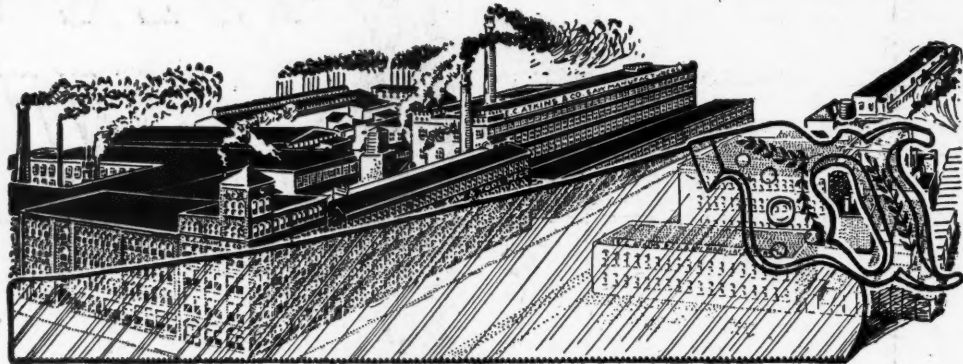
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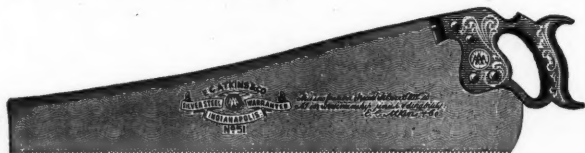
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WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Tech

CARPENTERS and builders will have no chance to rest this Winter—not if we have our way about it. We are absolutely heartless about alleged dull times in the building business. We'd not give one of Our Folks a chance to loaf a little and get caught up with his fishing. We'd make him work steady right through the Winter, and at good wages and profits, too!

And judging by the number and variety of the Winter income helpers suggested in the letters that are coming in every day now for our big Winter Work Contest, we believe that if there is any "off time" this Winter, it will not be for lack of good, practical suggestions as to how it might be profitably employed.

Our Fourth Annual Winter Work Competition was announced last month, and our readers took interest at once, just as we knew they would. A great big stack of practical, helpful letters has already come in. A great many are accompanied by photographs, pencil sketches or working drawings, which show very clearly just exactly how the propositions are handled. These letters are contributed in the most friendly spirit in the world. They are offered for the good of the cause and to help the other fellow.



Work for the Winter

Contest Closes October 10

Do Your Bit—Hurry in Your Suggestions

As this contest closes October 10th, you will have to hurry if you want to get in on this, and haven't already gotten your letter into the mail. If you have at any time—this year, or in former years—been troubled to keep busy during the Winter months just write us a letter telling how you met the situation. Some of your brother builders in other parts of the country may be up against exactly the same thing this Winter and your experience may be just what they need to show them the way out.

There is great satisfaction in doing a good turn, and more especially when there is a good chance of winning a nice prize at the same time.

Winter Building Work Not the Problem It Used to Be

Although the weather is a great factor in the building business, making it of necessity a seasonable business, it is certain that there is much less quietness in the winter season in the building line than

there once was. Contractors and builders have learned how to plan their work so that there are some parts of it that can be done even in the coldest weather. For instance, several buildings are started late in the Fall, and are fully enclosed before the

freeze-up. Then thruout the winter these are finished. All the inside work is done in comparative comfort and economy.

Not even concrete work halts any more for cold weather. In our department devoted to Concrete Construction, you will find this month practical, successful methods described and illustrated for winter concreting.

Thousands of carpenters and builders also have their little woodworking shops—all snugly heated and equipped with some power woodworking machinery, and there they spend the bad weather months to very good advantage. All of these factors help to make the building business a "twelve-month" job without any real slack season.

Prize Letters in November Issue—Don't Miss Them

The big feature of the AMERICAN CARPENTER AND BUILDER next issue is the Winter Work Competition. We know that every one of our readers will take a personal interest in this. Study these tested Winter Work suggestions yourself and show them to your friends. If you know any other progressive, wide-awake builder who does not subscribe to the AMERICAN CARPENTER AND BUILDER, but ought to, give us his name and we will send him a sample copy of this most interesting, valuable November issue. Yours for busy business,

Editor AMERICAN CARPENTER AND BUILDER.

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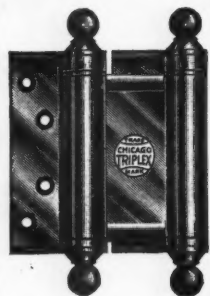
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CHICAGO

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offer this advantage to you. The appearance, durability and finish of this article are unsurpassed, and in consideration of prices that are conservative in respect to value, the up-to-date builder cannot afford to risk his reputation with goods that are unsatisfactory.

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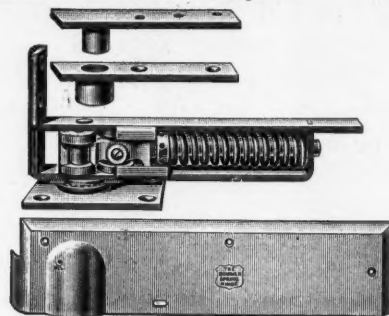


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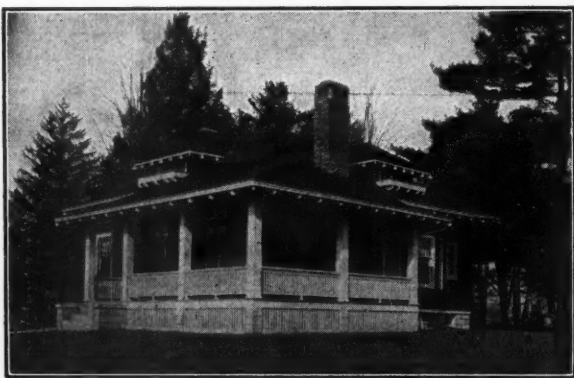
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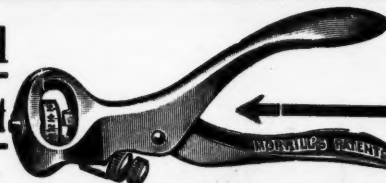
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CHAS. MORRILL

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The
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VOL. XX

OCTOBER, 1915.

No. 1

New Wisconsin Building Code

IT WILL APPLY TO SMALLER CITIES AND VILLAGES AS WELL AS TO LARGER ONES.

WISCONSIN'S building code as revised and adopted by the industrial commission became effective Sept. 20. The code has been published in pamphlet form for distribution by the Commission, Madison, Wis.

It applies throughout the state, to the smaller cities and villages as well as to the larger ones. Its administration and enforcement is to be carried out largely through local officials, fire chiefs, building inspectors, etc., so that the cost for inspection will be kept at a minimum.

The code covers nearly every imaginable kind of building construction, except private residences, flat buildings used for residence of not more than two families, buildings used for agricultural purposes outside cities and villages and temporary buildings or sheds used for construction purposes only. It does not limit, however, the power of municipalities to regulate building by more stringent provisions. It

prescribes rules for the installation of boilers and furnaces, smoke pipes, steam pipes, hot air pipes, electrical work, lights and roof coverings; lays down requirements for office, mercantile and factory buildings; provides safety regulations for elevators and the installation of fire prevention service.



New York Now Has Architects' License Law

A LAW was passed by the last legislature of New York State covering the registration of all persons who engage in the practice of architecture. The provisions of the law are as follows:

All persons who were engaged in business "under the title of architect" before the law was passed can become registered by presenting evidence to the board of examiners and by paying the required fee of \$25. All persons who come under this class must have been engaged in practice as a subordinate for two years before the date that the law went into effect or, if in practice for themselves or as members of reputable firms, they must have had one year's practice.

Applicants other than those already practicing must be at least 21 years old and of good moral character. They must have had at least two years' work in a reputable institution which gives a degree of bachelor of arts. If a course has been completed in architecture only three years of practical experience are required otherwise five years are necessary.

Architects from states that have as high requirements for registration as New York, can be registered without examination.

The members of the board of examiners are appointed by the regents of the University of the State of New York. The following constitute the board at present: Arnold W. Brunner, 320 Fifth Ave., New York; D. Everett Waid, 1 Madison Ave., New York; William P. Bannister, Brooklyn; A. L. Brockway, Syracuse; and E. B. Green, Buffalo, N. Y.

Violation of this law is punished, for the first offense by a fine of not less than \$50 nor more than \$100, and for subsequent offenses by a fine of not less than \$200 nor more than \$500, or imprisonment for not more than one year, or both.

The question as to whether this law will interfere with designs made by structural engineers and builders will depend on how the enforcers of the law interpret the phrase "the practice of architecture."



Florida Architects Must Register

SINCE August 29, 1915, all persons desiring to practice architecture in Florida are required to make application to the State Board of Architecture for a certificate, which is granted to the applicant without examination provided he has practiced as an architect in Florida one year or more and has presented an affidavit to that effect to the board with the fee of \$20.00. Hereafter annually during the month of July every registered architect who desires to continue to practice in the state, is required to take out a certificate of renewal at a cost of \$5.00. Penalty is provided for non-compliance with these provisions.

The architect's certificate may be revoked by this board for gross incompetency, or negligence in the construction of buildings, or for dishonest practices.



Mixers to be Rated by Size of Mixed Batch

UP to the present time there has never been any standard method of rating batch mixers. Some mixer manufacturers rate their machines by their capacity in *mixed* concrete, while other manufacturers rate them by their capacity in loose *unmixed* material. It is a well known fact that a mixer having a batch capacity of 8 to 9 cubic feet of unmixed sand, stone and cement will hold only about 6 cubic feet of mixed concrete per batch. For this reason the term three, four, or nine-foot mixer has never had any real, definite significance.

The National Association of Mixer Manufacturers,

at their August meeting, took steps toward remedying this difficulty by adopting a resolution providing for the uniform rating of batch mixers. This resolution provides that in future catalogs and circulars the members of the association shall specify the capacity of their mixers as "size of wet, mixed batch," and not otherwise. The resolution further provides that the dry unmixed capacity of a mixer may be approximated as one and one-half ($1\frac{1}{2}$) times the wet mixed batch, assuming the use of cement, sand and one and one-half ($1\frac{1}{2}$) inch crushed stone, with $1\frac{3}{4}$ gallons of water per cubic foot of mixed concrete. The members of the association further agreed not to use the dry batch rating in their correspondence, advertising, etc., unless the standard wet batch rating were used also and with equal prominence.

This step is a very desirable one,—one that will prove beneficial to all contractors, mixer manufacturers, and everyone in fact connected with the concrete and cement industry. A contractor can now arrive at a real comparison between mixers,—not only in price but in capacity. This would have been much more difficult without a standard rating.

HAROLD E. SMITH, Secretary,
National Association of Mixer Manufacturers.



Modern Architecture Popular at Peking

A DISPATCH from Peking, China, states that Western styles of architecture have been making their appearance in government buildings in various parts of the city of Peking in recent years, and because of the presence of enterprising German architects, the new government buildings which are going up generally have the high German roof. These buildings stand in contrast to the Chinese buildings, which are also conspicuous for heavy roofs, but of a totally different style.

There have been criticisms by those foreigners whose artistic temperaments do not permit them to appreciate the incongruity of architecture. The offense to them has now reached the climax, for a contractor who has been engaged in breaking new gates into Peking's great wall has gone further and is altering the great loop holes for cannon in the pagodas at the Chien-Men, the front gate of Peking, into windows with prominent European arches over them.

The old Manchu regime had its own fixed rules and regulations for architecture; the present government is adopting foreign styles with a rapidity that often causes remarkable, sometimes ludicrous, incongruities.



Where Psyche Was Executed

A New York man was recently acting as guide through an art gallery for a friend from the country. As they paused before a statuette, the guide said:

"That is Psyche. Executed in terra cotta."

"What a pity!" said the rural one. "How barbarous they are in those South American countries."

Pick-Ups on the Job

By H. J. Blackledge

NEXT time you set nails in siding on seven sides of a job and two stories high—just wrap your nail set with tape and you won't have such a bruised hand about five P. M.

INSTEAD of a plumb bob, or a two foot level, or holding a level to a straightedge next time you are plumbing studding at the corners (or elsewhere) suppose you fix up a nice light straightedge, about eight feet long, with good generous handholds, and then *fasten your level to it* with a couple of screws and large washers. If careful to get it adjusted accurately you will save time enough on one job to make the whole outfit. (This does not go for you who have the latest "round" level to fasten to a straight-edge.)

WHEN we quit Saturday afternoons we put up a little sign which reads: "VISITORS WELCOME! Providing they do not meddle." I have found that this will secure quick appreciation, that very few people will ever bother anything, and that it has far better effect on small boys than the familiar, "KEEP OUT! This means YOU!" There is *always* a prominent sign somewhere about the job containing our addresses and telephone numbers. And quite often visitors have used the information on a Sunday afternoon to enquire about something.

ALONG the same lines—take care of your cards! Carry them so they are clean and straight. Some of the cards offered me have had dirt enough on them to start a potato patch. What would any carpenter think of a *lawyer* that handed him a card soiled, greasy, finger marked, bent—! Sure he would never go back to *that* place. If a man hasn't respect enough for his business to keep his cards neat and clean he has no business to be in that business!

ALSO we find that it pays to clear up a little on Saturday afternoon. Have the front steps clear so that visitors can come in and look around. You never know when some one is going to be out for a walk Sunday and find that your job just suits them. And the cleaner and tidier things look the better impression it is going to make on them. Besides, your material is kept in better shape by being piled up once a week. Usually my partner or myself does it and we do not spend over twenty minutes to three-quarters of an hour about it. Just pick up a little, you know.

IF a kid comes around with his little wagon and wants a load of kindling you will gain by giving it to him. Pay a little attention to him. Ask him to clear away certain trash for a load, or two or three loads. Let him realize that it is valuable and that you are doing him a special favor. If you fire him off the job he will come back after you are gone and get 'steer

loads. And he will probably carry off a lot of nails and any odd tools he may find lying about also. While if you treat him "white" in ninety-nine times out of a hundred he will take good care of anything he happens to find in your absence and hand it to you next day. It pays to keep on the good side of the small boy!

AND one more thing—Don't Gas ! ! ! ! *Nobody* likes a man that lets his work go while he talks, whether he is working for them or someone else. If you do a little job for the owner of a rented house and spend part of your time talking to the tenant you can rest perfectly sure that you will *not* get any of that tenant's work when she has a place of her own. And that regardless of how anxious she may have been to talk while you were working for her landlord. Remember this—that to a carpenter *everybody*, every-single soul you meet, is a *possible* customer. And, remembering this, treat them exactly as though you were working for them NOW. In this way you play safe at all times.

AFRIEND of mine has made himself a light drop-leaf work bench to carry around for little odd jobs. It is about 8 feet long, and the top is a light piece of two by six redwood. The drop leaf is a light piece fourteen inches wide, hinged to the two by six, thus giving a top twenty inches wide and eight feet long, large enough to do all kinds of small work on. The legs are of 1x3 pine, dressed and slightly tapered, the two on the off side sloping back at a good sharp angle. It will not fall over backwards when you lean against it. There are braces on all legs and they are all mortised so as to make a thorough job. Blank picks this bench up and shoulders it, takes a few tools in a hand box and sets off for a job pretty well equipped. The only complaint is that the redwood, which he used on account of its lightness, is not very durable for such purposes. It is too soft.

HERE in California we shingle the sides of a good many houses, and some people object to the blue chalk line, which, I admit, does show up quite prominent for a time after the job is finished. But the other day we found an antidote. We used red chalk. It takes a spy glass to see it after the shingles are on. It is a good idea to have the national colors of chalk in your tool box, I find. Sometimes you have occasion to snap a line on a white surface where blue or red would not be permissible. But a white line will show up enough to guide you, yet not be an eye sore.



He Cut Out the Muffler

Pa—"Lizzie, after that young man said good-bye, did I hear the sound of osculation?"

Lizzie—"I don't know, pa; maybe it was his motorcycle you heard."

The New Sheepshead Bay Speedway

REMARKABLE STRUCTURE OF CONCRETE, STEEL AND WOOD TWO MILES IN CIRCUMFERENCE AND PROVIDING SEATS FOR OVER 100,000 SPECTATORS



One Huge Turn on the New Sheepshead Bay Speedway. The Banking Arises to a Height of 26 Feet. The Outer Rail of the Steel Framework Shown Will be Filled with Concrete to Form a Retaining Wall.

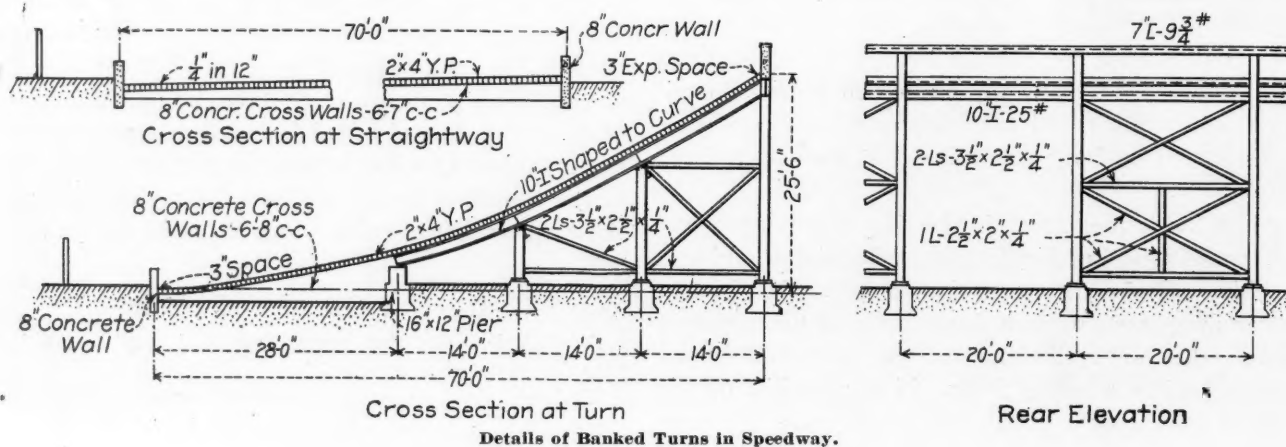
MANY people have the idea that all that is necessary to make a speedway is to have the surveyor lay out the course and then start in to make the concrete foundations. Quite to the contrary, the preliminary work that has to be done, before an undertaking like this is actually commenced, involves an enormous amount of expense and time.

In building the new Sheepshead Bay speedway outside of Brooklyn, a small industrial community was built first. From 2,000 to 2,500 men were employed and four-fifths of them were fed and housed at the temporary homes provided for them. A grocery store, butcher shop, ice plant, tobacco shop, and a clubroom were furnished in the little town that was established.

Shops had to be erected to aid in the construction

work and these were very complete. Among these were a machine shop, a blacksmith shop, a wheelwright department, a garage and repair shop, and a carpenter shop. The carpenter shop was especially large and complete to take care of the millions of feet of lumber that were used in the track and in the stands and also in the form work for the concrete foundations.

One of the distinguishing features is the method used in constructing the curves. The line of banking is not straight as in most tracks, but is a parabolic curve. The sharpness of the angle of the track varies from bottom to top. The nearer the top the steeper the slope and consequently the greater speed that can be developed safely. The chief engineer, Mr. Blaine H. Miller, estimates that a speed of 140 miles per



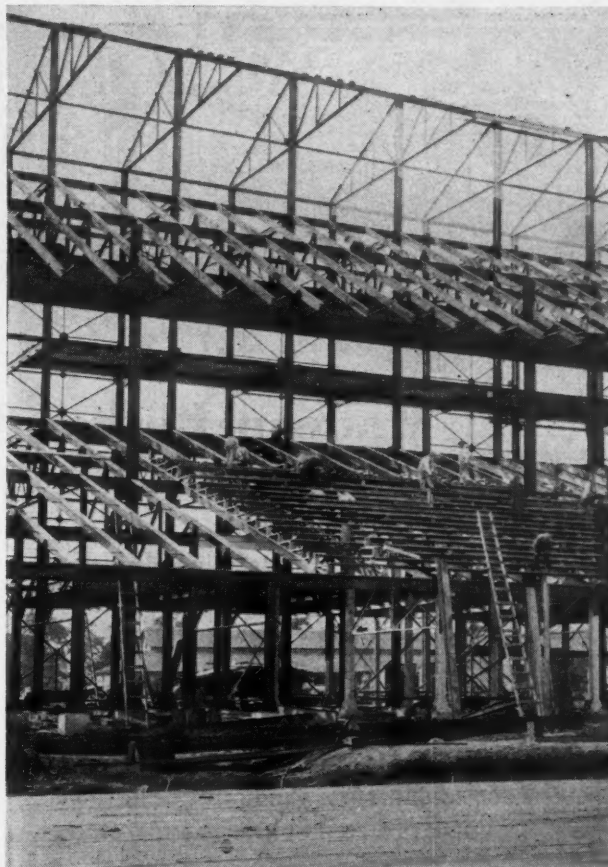
hour can be developed without any danger of skidding off the track at the top.

The track is laid on sleepers that are spaced 6 feet 8 inches center to center. These sleepers are made of 8-inch concrete walls on the straightaway and on the transition curves leading to the main curves. On the curves the track is supported for the inside 28 feet by a curved concrete sleeper and outside of this by a steel framework as shown in the cross section. Steel I-beams are used as sleepers here and are bent cold to the exact curve of the track. The track is 70 feet wide over its entire length.

The floor of the track is made of 2 by 4-inch long-leaf yellow pine. These timbers were set on edge and were made of different lengths so that the joints could be readily staggered. There is 16 per cent of 14-foot, 16 per cent of 16-foot, 18 per cent of 18-foot, 50 per cent of 20-foot lengths. These various lengths will allow of expansion from moisture. The space under the track is ventilated by square openings, cut in the concrete walls, and drainage is provided by the use of 8-inch porous tile placed 2 feet inside the inner walls, except where there is sandy soil. The surface of the track is to be treated with a light creosote oil that is to be applied with a mop.

The outer elevation of the track on the curves was carefully computed and was finally decided upon as 25 feet. The resulting allowable speeds are 40, 52½, 77½, and 96 miles per hour on each of the 14-foot sections from the inside to the outside of the track, to give a normal resultant pressure. Much higher speeds than this can be developed, however, when frictional resistance is taken into account.

More than 12,000 cubic yards of concrete, 1,570 tons of steel, and 3,000,000 feet of lumber are used on the track itself, while about 2,500 tons of steel and 3,500,000 feet of timber are required for building the enormous grandstand designed to seat about 100,000 spectators.



Huge Steel, Concrete and Wood Grandstand Now in Course of Construction at the Sheepshead Bay Speedway. The Completed Stand Will Seat More Than 75,000 People. The Board Surfacing on the Two Mile Oval Track is Now Practically Completed.

The space inside the oval, about 1,400 feet by 1,800 feet, is utilized for football, baseball, track athletics, aviation contests, military contests, etc., when races are not being run. Tennis courts and a golf course are being considered also. The Sheepshead Bay speedway is destined to become one of the greatest sport centers of the world.

The first race at the new speedway is on Oct. 2, 1915. This race is to be an annual feature called the Vincent Astor Cup Race and is to be for 350 miles for a \$50,000 purse.



Bleachers of Wood Construction on Back Stretch Sheepshead Bay Speedway.



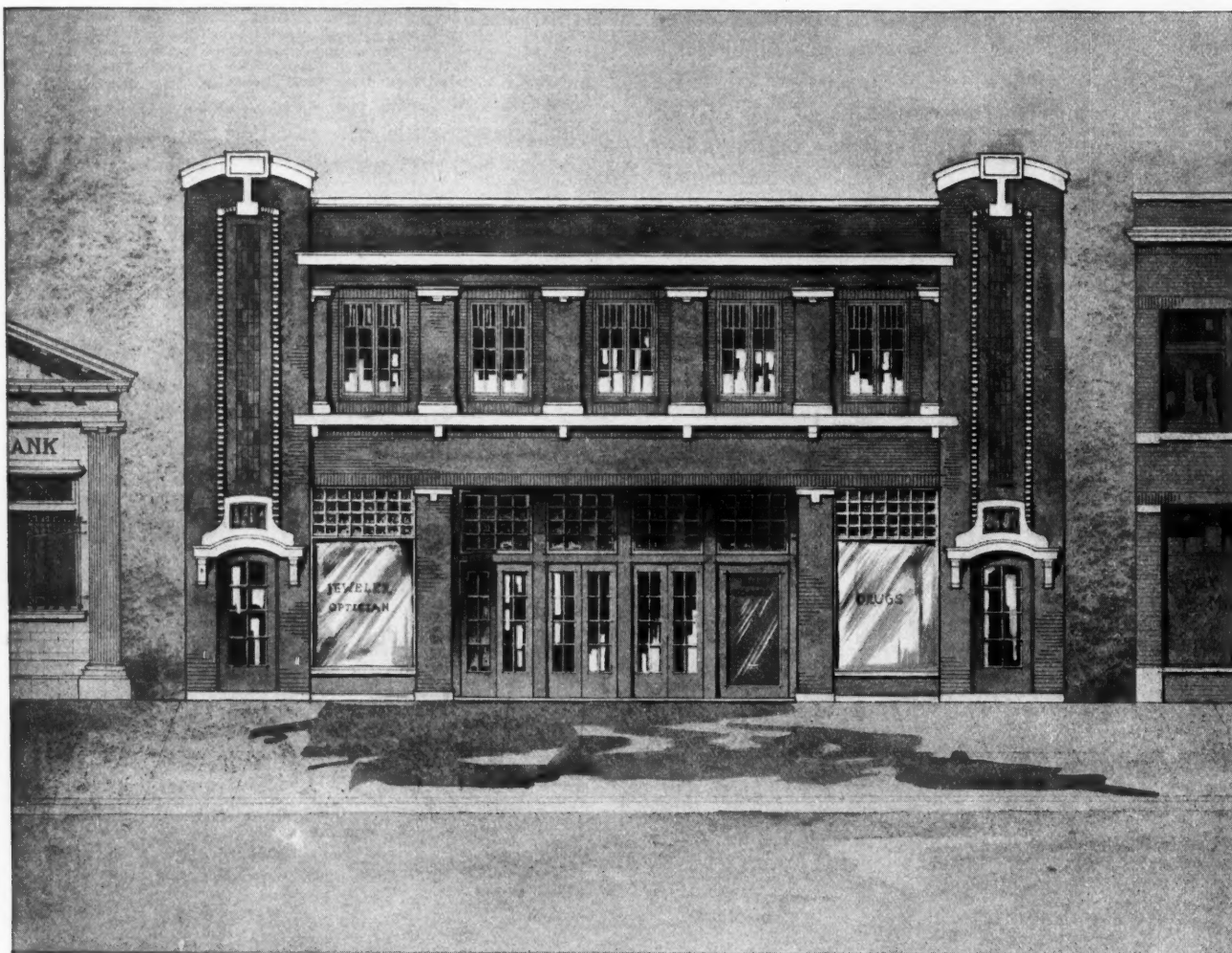
Modern Photo-playhouse Design

FIRST OF SERIES OF WELL DESIGNED BUILDINGS, PRESENTING RENDERED PERSPECTIVE VIEW, FLOOR PLAN AND DETAILS OF CONSTRUCTION

THE accompanying illustrations show the first of a series of miscellaneous building plans that are to be shown in this magazine. Buildings of this type are being built more and more throughout this country and much of this work is being done by our subscribers. The time has passed when the main street of the smaller cities and towns was made up of tumble-down, ramshackle buildings. Instead there are modern, up-to-date store buildings, business blocks, theaters, etc., that are a credit to the town.

We have shown many plans of residences of all kinds and we are sure that our subscribers have received many benefits from them. This feature will not be neglected as we are simply adding this series of designs to cover other classes of buildings. This type of work presents great opportunities to all of our readers.

Take motion picture theaters, such as the one shown here. Formerly the movies were staged in any kind of a shed that had a large floor space. Considering the



Business-Getting Front for Modern Popular-Design Moving Picture Theater and Store Building. Size, 50 by 90 Feet. Seating Capacity, 350. When writing about this Design refer to Number 6692. Price of Blueprints and Specifications on application.

quality of the pictures that were made at that time, any old barn was consistent for their exhibition. Now there are film dramas, and they must be shown in an attractive, modern building. People expect a real building now for this purpose and they are getting them everywhere.

The same thing is true of stores and business blocks. The old store with its dirt, dust, and lack of ventilation and light, is a thing of the past. Storekeepers find that they do much better and have more regular customers if they have stores in well-lighted, clean buildings which have broad windows, for show purposes, and which are so made that they could be kept in the best condition all the time. Nobody can keep an attractive store in a shed.

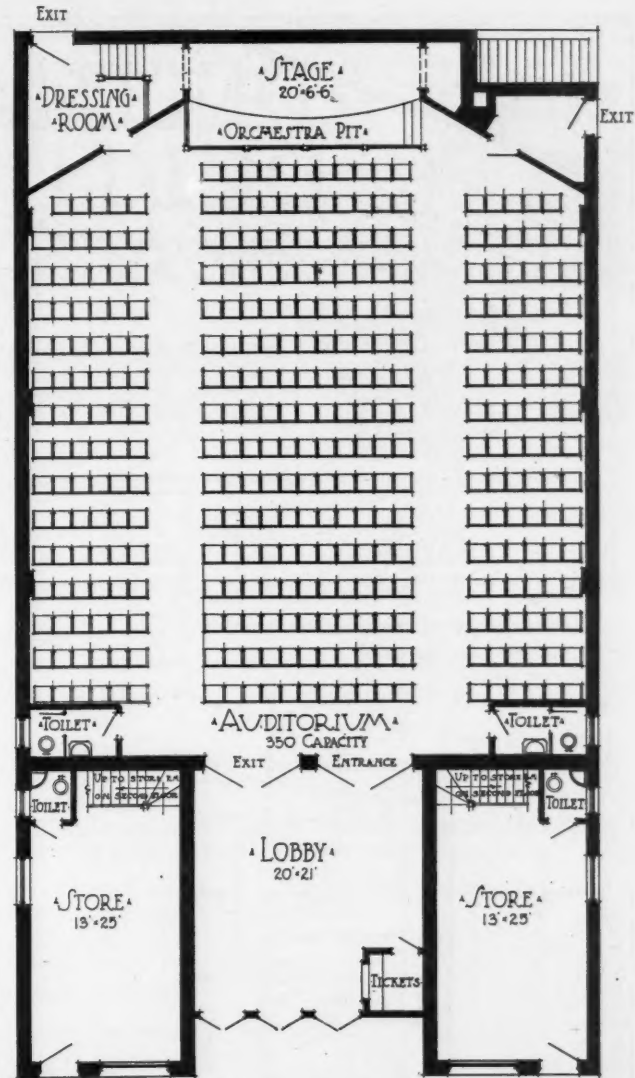
These are some of the reasons why we have the modern buildings such as this one with its brick and terra cotta front—a building that looks as though it was built for a purpose and not merely to cover the ground.

We suggest that our readers take extra good care of the copies containing these plans, keeping them on file so that they can be used for reference when they are called upon to plan or construct buildings of this type. The contractor who has some definite ideas on business buildings of all kinds will come in for a good share of the work. Many good suggestions can be obtained from the plans, sections, details, and perspectives that will be shown in this series.

The front of this theater presents a pleasing design. It is made of face brick with terra cotta trim. The entrance to the lobby is set back into the building a little and consists of three pair of double doors, each door containing eight panels of glass.

On each side of the lobby is a small store containing a broad show window. Stores located in this way are in great demand. A show window can be cut from the lobby of the theater to either or both rooms and the window displays are seen by a great many people each day. Drug stores with their accompanying soda fountains find such a location exceptionally profitable.

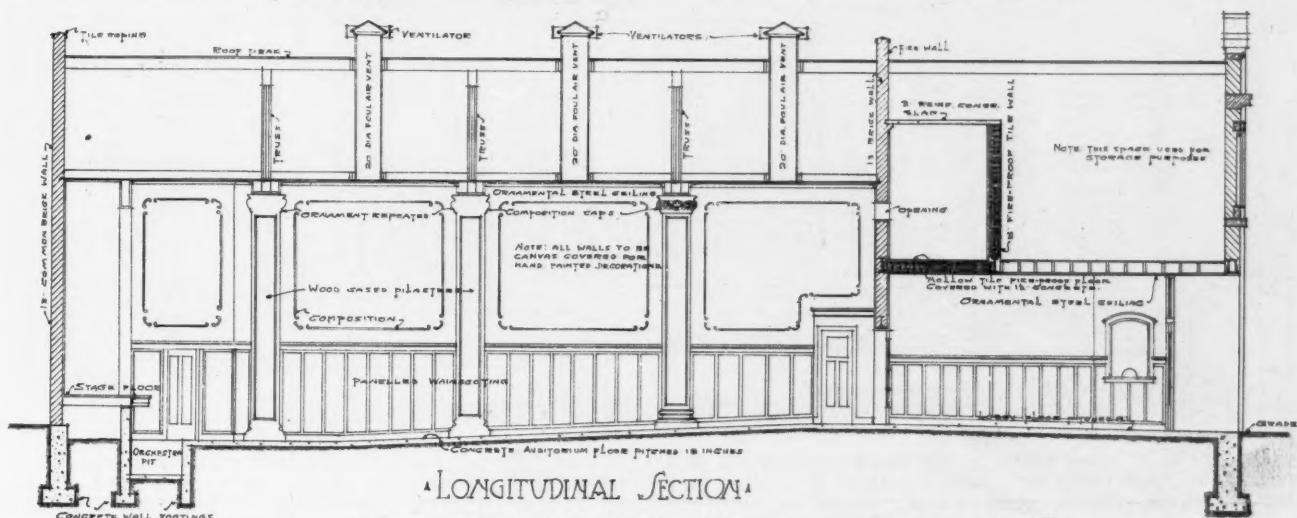
Over the stores and the lobby on the second floor



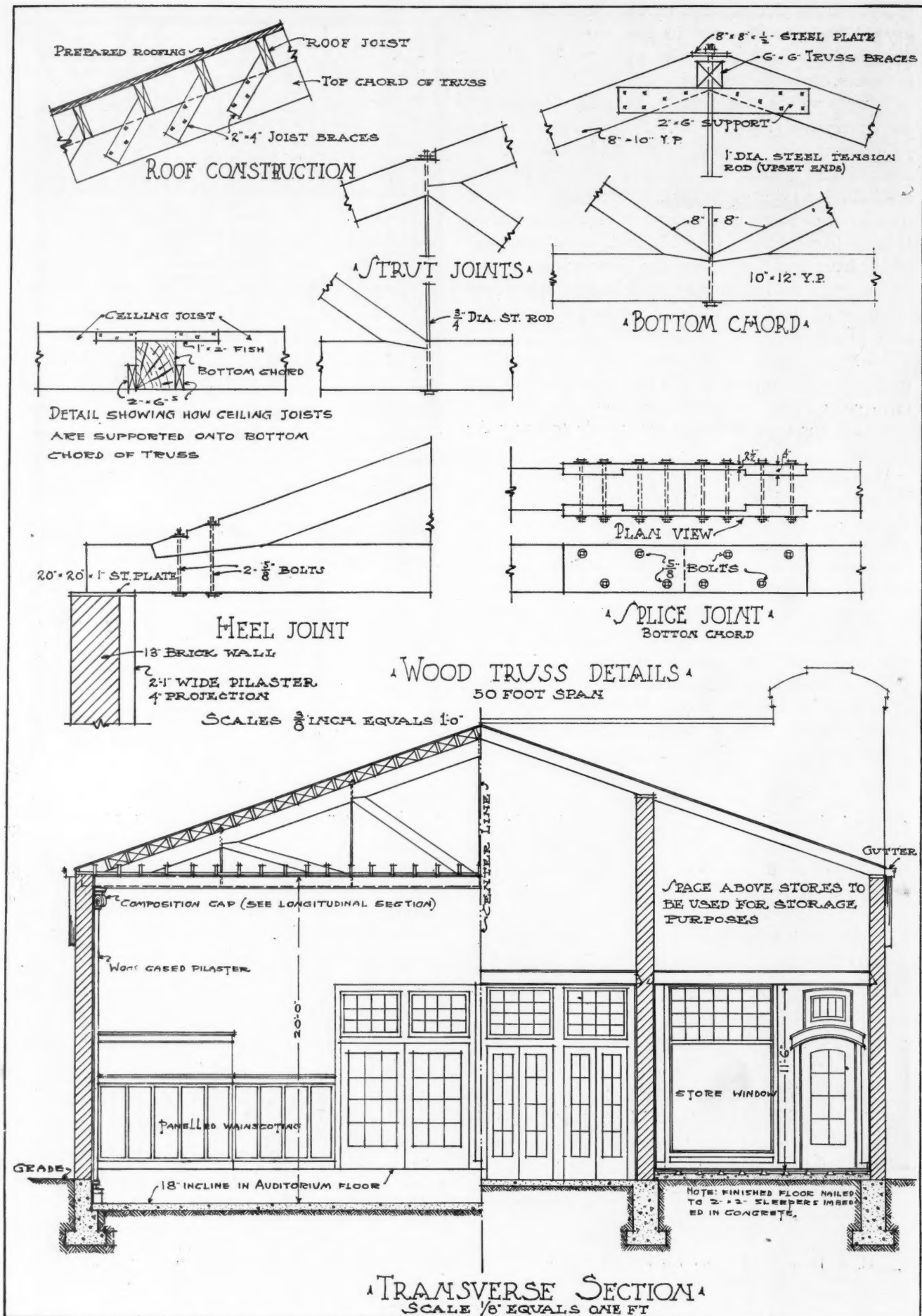
Main Floor Plan of Theater Design No. 6692. Size, 50 by 90 Feet.

are two rooms connected with the stores below which can be either used for small shops or for storage purposes.

In the section, shown on this page, can be seen the method used in constructing the booth for the moving picture machine. This is made absolutely fireproof so that there will be no danger of the fire spreading in case of an accident in this booth.



Section Thru Theater Showing Arrangement and Construction.



DETAILS OF CONSTRUCTION OF MODERN PHOTO PLAY HOUSE
(DESIGN NO. 6692) ILLUSTRATED ON PAGE 42.



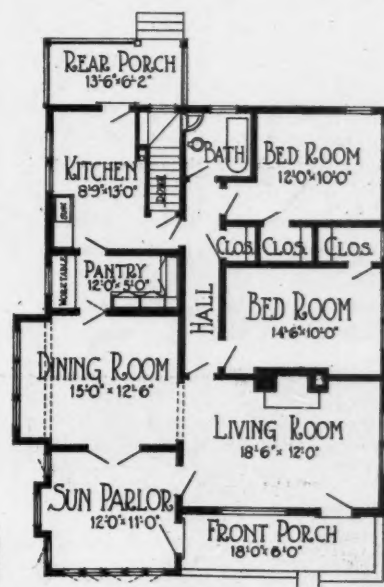
Typical California Bungalow Design

A six-room home showing many features typical of bungalows is shown here as Design No. 6709. The most striking feature of the exterior is the roof. There are three gables—one covering the main part of the house, one covering the sun parlor, and one over the bay projecting from the dining room. These roofs are all very broad and flat and have a wide overhang. Many bungalows are built with this sort of a roof and they always give an effort of comfort and coziness. The overhang is braced underneath by heavy brackets which are in keeping with the rest of the house.

The entrance from the front porch is

directly into the living room. This is a well arranged room, 18 feet 6 inches by 12 feet. In the back of it, between it and a bedroom, is a brick fireplace. There are two windows on the side in addition to the side window in the front, so the room is lighted in good style. On the other side is a cased opening into the dining room and also a door leading to the sun parlor.

Opposite the kitchen and dining room are two bedrooms arranged on an inside hall. Both are large, comfortable rooms; well lighted and equipped with roomy, convenient closets. At the back, also opening from the hall, is the bathroom. This arrangement gives full privacy, yet all rooms are readily accessible.



Main Floor Plan of Bungalow.
Size 32 by 44 Ft.



Artistic, Six-Room Bungalow. Size, 32 by 44 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$8.00 per set. Blueprints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6709.

Dutch Colonial Eight-Room House

In these illustrations is shown an eight-room, strictly modern home of exceedingly distinguished appearance. It gives the impression of quiet stately beauty and includes many unusual features. The window treatment in the front of the house is decidedly different from the ordinary. The windows are full length of the casement type, known as French windows. All the windows in the dining room and living room are of this kind and are very attractive. The windows are divided into small panes which, aside from the fact that it presents a more distinguished appearance than a solid plain window, is more economical because, in case of breakage, several of the smaller panes are cheaper and easier to replace than one large pane.

The dormers, decorations over doors and windows, wide shingles, entry way, and white face-brick chimney are all in keeping with the Dutch Colonial style of architecture used in this house. It is a very well balanced design arranged with great care as to harmonious details.

The entry way of brick opens into a vestibule with a closet for wraps. On

each side of the vestibule is a cased opening—one into the dining room and one into the living room. The stairs to the second floor go up from the vestibule.

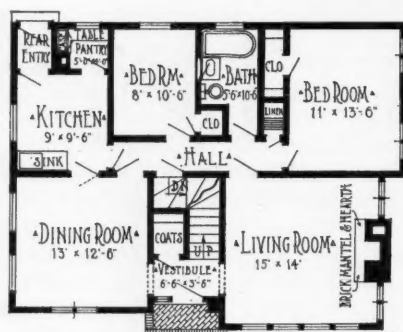
The living room is very attractively arranged. In the front are four French windows and on the side are four more. The windows on the side are placed in pairs on each side of the brick fireplace. With so many windows, this room is more like a sun parlor than anything else, and is mighty bright and cheery.

The dining room has two French windows in the front and two on the side.

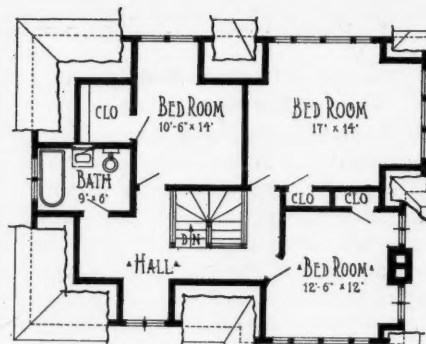
Rooms in this style house have to be very well lighted to harmonize with the general architectural scheme.

In the back part of the house are two bedrooms, a bathroom, and a kitchen. A hall connects up these various rooms.

The second floor plan calls for three bedrooms and a bathroom in addition to a large square hall. The two bedrooms on the side have enough windows so that they can be used as sleeping porches. These bedrooms are very bright and cheery and because they are so well lighted they can be used as sewing rooms.



First Floor.



Second Floor.

Arrangement of House, Size 38 ft. 6 in. by 29 ft. 6 in.



Dutch Colonial House of stately appearance. Size, 38 ft. 6 in. by 29 ft. 6 in. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$12.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6718.



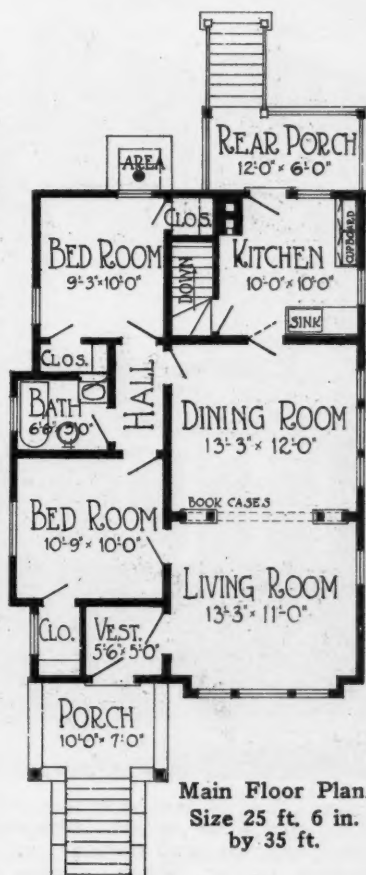
Comfortable Cottage Design of five rooms. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$5.00 per set. Blueprints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6727.

Wide-Board High Cottage

A five-room bungalow of quiet, comfortable beauty is shown in these illustrations as Design No. 6727. This cottage is of the type that is built high so as to provide a dry, well lighted basement with considerable headroom. A basement of this style is generally much more useful than the ordinary dark basement. Plenty of room is assured for a heating plant, and there will be space for a laundry and a work bench—which is very desirable.

The exterior is finished with extra wide boarding and white trim. The gable treatment is worth noting. The heavy beam sill placed on two brackets under the small window is unusual. The projecting three window bay at the front is attractively finished.

The entrance from the front porch is into a small vestibule which opens into the well designed living room. The cased opening from this room to the dining room extends almost completely across the room, so the effect given is that of one big room. The space underneath the colonnade on each side is utilized as bookcases. The arrangement of the windows, in this room in connection with the doors and wall spaces, will suggest many ways of decorating the room artistically. By the proper selection of furniture and decorations, it



Main Floor Plan.
Size 25 ft. 6 in.
by 35 ft.

can be made extremely attractive. The finish of the living room and dining room should be made to harmonize.

The dining room is large and is lighted by three wide windows on the side. The furniture in this room should be of a type that will go well with the living room. Doors open from this room to the kitchen and also to the back hall.

The kitchen is of the compact kind; arranged to provide the maximum amount of comfort and convenience. The cupboard is along one side next to the window and the sink is along the wall between it and the dining room. The rear porch is available for keeping many things that may be wanted at various times. The entrance to the basement is through the kitchen.

There is a back hall in the house which makes all the rooms easy of access. This hall opens into the bedrooms, the bathroom and the dining room. One of the bedrooms also has a door into the living room. The two bedrooms are well arranged with windows and large, roomy closets.

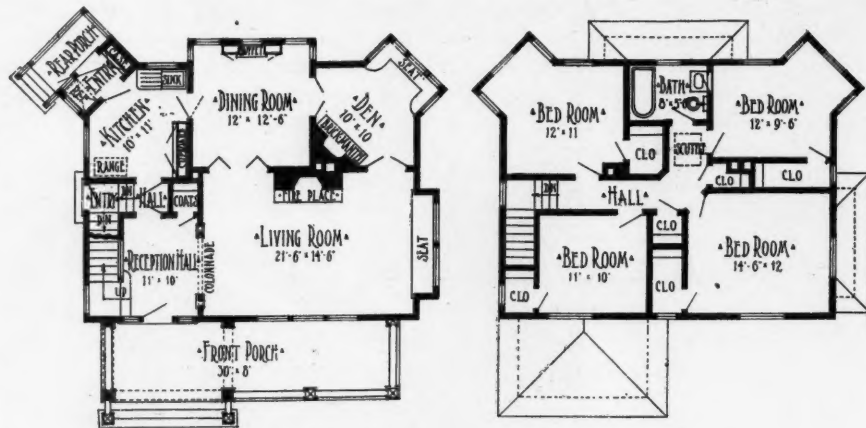
This house will go well on a narrow lot as it is only 25 feet 6 inches wide. Its restful and comfortable character will make it harmonize well with almost any surroundings. It is a type of simple design that is much sought after.

Hip-Roof House with Upper Story Stucco

There are two distinctive features of the artistic home shown here as Design No. 6712. One is the method of handling the exterior walls and the other is the unusual shape of the house with the two projecting back corners as shown in the floor plan.

The square projecting corners in the back of the house make handsome little cozy corners in the rooms on both the first and second floor. As these projections have light on three sides they are extremely bright and cheery. In the den on the first floor the corner is occupied by a seat which is diagonally opposite a brick fireplace set across the corner. This makes an unusual arrangement which is in keeping with the distinctive six-sided room which is formed. The other back corner on the first floor is used as an entry to the kitchen. It contains a cupboard and also a refrigerator that is iced from the back porch. On the second floor these corners furnish pleasant additions to two bedrooms.

The foundation is made of concrete and enough windows are placed in this to insure a well lighted and pleasant basement. From the foundations to the sill course on the second floor the walls



First Floor.

Second Floor.

Arrangement of House. Size, 34 by 26 Ft.

of this house are finished in rough boards that are not overlapped in any way. The joints are made water and weather tight by the use of two-inch battens that are nailed over the openings between the boards. The boards and the battens are stained a dark color. From the sill course up to the eaves the walls are made of stucco which is paneled in the English half-timber style. The dormer window is also finished in stucco. The paneling in the stucco is stained dark to match with the rest of the exterior finish.

The entrance from the front porch is into a reception hall that is connected to the large and home-like living room by a colonnade and a cased opening. The brick fireplace which has been mentioned as opening into the den is made double and also has an opening into the living room. The dining room is directly back of the living room.

The four bedrooms on the second floor are all equipped with large closets and there are also two closets opening into the hall. The bathroom is placed in the back between the two bedrooms.



House with an unusual and artistic floor plan. Size, 34 feet by 26 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$9.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6712.



Well arranged seven-room cottage. Size, 26 feet 6 inches by 42 feet 6 inches. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$6.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6716.

Bungalow Cottage with Paneled Gable

The exterior of the house shown in the accompanying illustration presents an unusual and attractive way of finishing the outer walls of a bungalow. It is a mixed style. From the ground to the sill course the walls are of wide siding stained dark; from the sill course to the belt course the walls are finished in clapboards painted a lighter color; above the clapboards are dark shingles up to the plate; and the gable above is finished in stucco with half-timber panels.

Three windows occupy the panels in the center and the two smaller windows, one on each side to light the closets, are unusual. Paneled stucco makes one of the best ways of finishing a gable. The paneling can be handled in so many different ways that it can always be made distinctive.

The library of this house is perhaps the most inviting room on the first floor. Though not very large, it is artistically arranged. Across

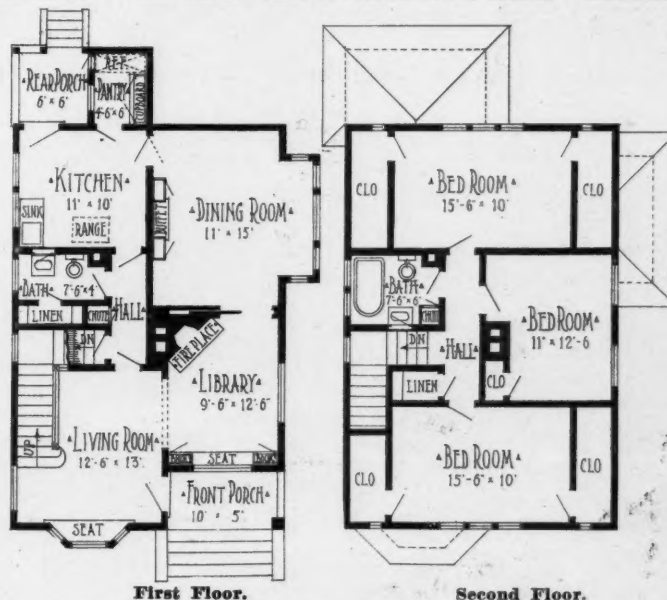
the broad window that opens to the porch is a seat which is flanked on each side by bookcases. The big brick fireplace is handled in an unusual way. It is placed diagonally across a corner of the room.

The living room in this design serves as a reception hall also. The entrance from the front porch is directly into this room. Also the stairs to the second

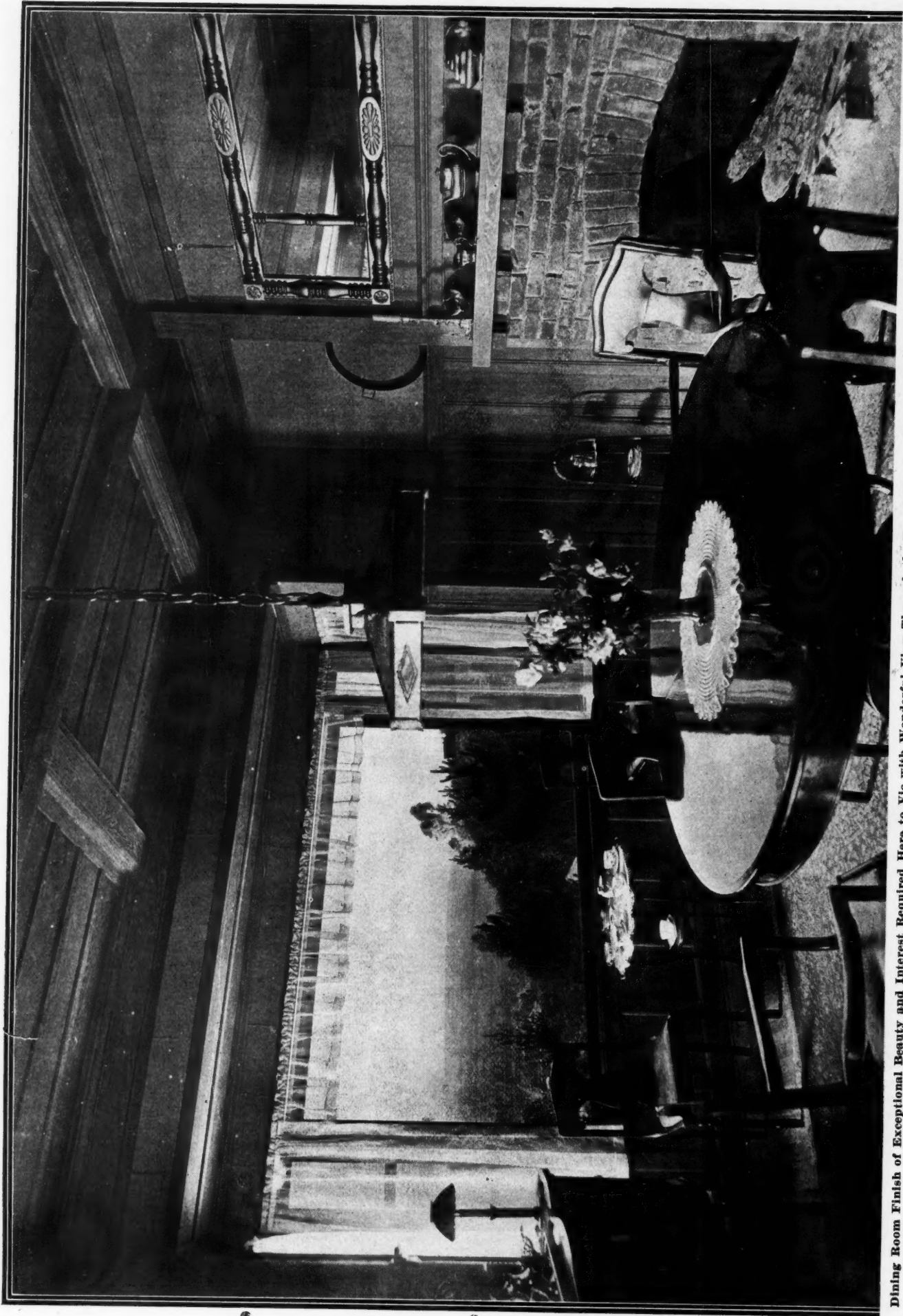
floor are placed here across from the entrance.

The kitchen is almost a model for a modern house. It is made small and compact without being crowded in any way. The pantry is conveniently placed near the dining room where its use will not require a lot of extra steps. This pantry contains a cupboard and an outside iced refrigerator and is well lighted by a window facing out on the back porch. The sink is placed in the corner of the kitchen under one of the windows, so it will get plenty of light. The handy covered rear porch will be used a lot in summer time as a part of the kitchen.

Lots of closet space is provided on the second floor which will bring joy to the housewife. Both the front and back bedrooms are equipped with two closets under the eaves of the house. There is also a closet in the other bedrooms and one in the hall for linen. One of the great advantages of the story-and-a-half type of house is abundant closet space.



Arrangement of House. Size, 26 Ft. 6 In. by 42 Ft. 6 In.



Dining Room Finish of Exceptional Beauty and Interest Required Here to Vie with Wonderful View Through the Board Window Down the Mountain Valley—A California Scene. Note Wood Paneled Ceiling and Dado.

Bungalow of True Western Style

An unusual and extremely attractive bungalow is shown here as Design No. 6692. The method of finishing the exterior is perhaps the most distinguishing feature.

The foundation is of dark rough brick. From the foundation to the sill course the sides are finished in true bungalow style. Seven-eighths by ten inch boards with surfaces just as they came from the saw are used here. From the sill course to the eaves the walls are covered with clapboards. The combination of these two methods of finishing is rarely seen; it gives a distinctive touch to this home. The entire exterior trim is white, contrasting pleasantly with the rest of the exterior.

The entrance to the house is into a vestibule that opens into the living room. The combination den and library in front of the living room, is a mighty cozy little corner. It has a window opening out onto the front porch. You can sit in here with a

good book and if people come to see you whom you don't want to see, you can remain in hiding and they will think that nobody is home! Space for keeping the books is provided by two bookcases, one on each side of the room; and there is also a wide seat along the window and extending around the corner.

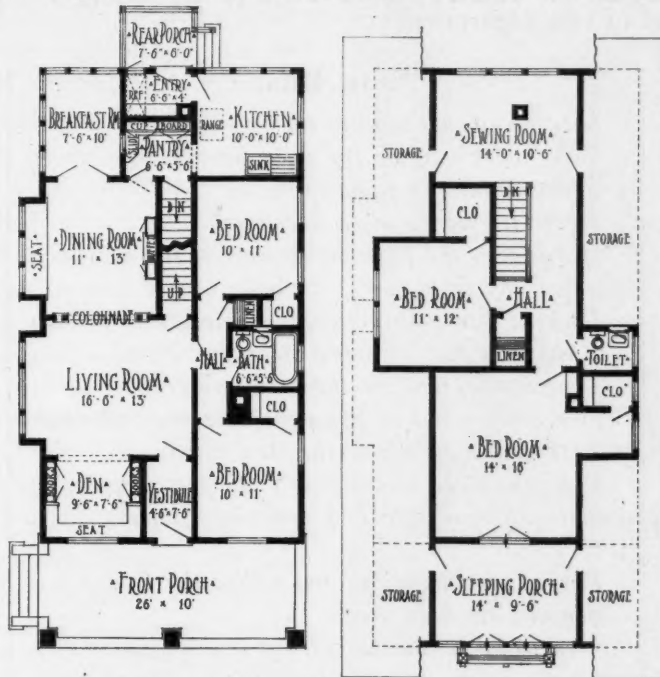
In the living room is a large bay window that makes it a well lighted and cheerful room. This room is connected to the dining room by a colonnade so that a large unobstructed floor space is furnished.

The dining room also has a projecting square bay window which has a seat in front of it. Across the room from these windows is a built-in buffet that adds considerably to the convenience of handling the working end of the house.

The little breakfast room porch with its many windows is a pleasant addition to the dining room.

The kitchen is equipped with a convenient serving pantry between it and the dining room. There is also an entry which contains a refrigerator to be iced from the outside.

The second floor plan calls for two bedrooms, a sewing room, a sleeping porch, and a toilet. Plenty of closets are provided and there is lots of storage space under the eaves which can be reached from the sleeping porch and sewing room.



First Floor. Second Floor.
Arrangement of Bungalow. Size, 26 by 46 Ft. 6 In.



Eight-room, story-and-a-half bungalow. Size, 26 by 46 feet 6 inches. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$8.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6692.

"Lack of Harmony Between Partners Throws Sand Into the Gear Box of Many a Concern"

THE MAN FROM THE LUMBER YARD

Being interested in the general welfare and success of our readers, we engaged, a year ago this month, "The Man from the Lumber Yard" to place various matters before you. We would be especially pleased if our readers would write to us, stating any special subject they would like discussed in this department.

—EDITOR.

LIKE every one else who visits Hannibal, Mo., I walked down to Hill Street to see the boyhood home of Mark Twain.

As you stand in that deserted street, deserted because there is nothing attractive about it, and it is too steep and rough for anything less agile than the Missouri mule to climb, you realize that it was not his material surroundings that made Samuel L. Clemens universally loved. Nor was the affection any the less because he died a poor man.

Nor was there anything inspiring in the plain rambling frame house with its dinky front porch and old fashioned trellis, in Oberlin, Ohio, where Charles M. Hall spent his childhood and youth. It was he who made it possible to produce aluminum at a marketable price, and made it possible to work the metal after it had been wrested from the clay. Nor did anyone begrudge this quiet, diligent man the ten millions of money that was willed to good work at his death.

You know the man around the corner that you have such a pleasant feeling towards and like to meet. He is the man who greets you with a hearty "Good Morning"! He makes you feel that you are somebody. He may be a poor man. He need not be an educated man, but if he has the heart for a friendly disposition, he gets next to you. He is especially appreciated because he is so different from the other man who lives across the street. He may be a regular money-bags. An encyclopedia may be stored in his head. Yet you have a sort of flat, chilly feeling as he grunts a "Howdy" and looks at the

"Saw Dust"

Discontent puts sand in the gears of life.

Your work may be the most interesting game if you play it in the right spirit.

Never let worry work overtime.

A smile on the face and a song in the heart will sweeten any service.

Lack of harmony between partners throws sand into the gear box of many a concern.

Contentment butters the plainest bread.

The daily grind of life polishes some and wears out others, it depends on the stuff in you.

When you are disposed to criticize everyone, try standing to one side and watching yourself for a while.

Forget your handicap and utilize the facilities to which you are heir.

Men make circumstances, not circumstances men.

The lazy man relies on luck, the pusher on pluck.

It isn't much of a man that will blame his parents for his failures.

hitching post or into the middle of next week, as he passes you.

It is for you to decide which man YOU will be like. You know how the attitude of either of these men affects you. It is for you to decide as to how YOU affect the people you meet. You can make your personality an asset.

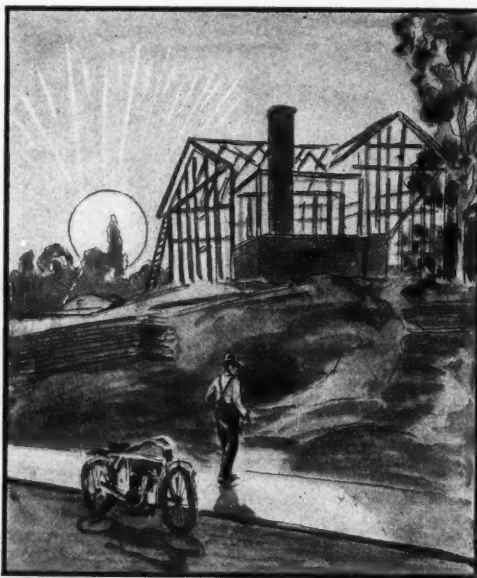
You may be as homely as a mud fence and have no more polish. Your education may be very rudimentary. Your housing may be as modest as the plain shacks which sheltered Mark Twain, and Charles M. Hall, but you can develop personality, if you so WILL it.

No, you do not have to quit your job, no matter what it is. All that is necessary is to develop a hobby. Keep a vital interest in life, in the welfare of your associates, of all with whom you come in contact.

You can't raise turnips unless you plant turnip seed. You can't have friends unless you plant friendliness.

You can't develop personality unless you can develop friends.

I have no patience with the man who preaches slothful contentment. Consider what would happen if every ocean wave, every lake ripple, every running river and noisy brook were stilled. It would mean stagnation, disease, decay, death. The slothful man is never vigorous in body or healthy in mind, nor does he get anywhere. Nor does stubbornness reach desirable ends. It is probable that the alligator is the most stubborn animal to be found. In an alligator forty years of age, the brain is not much larger than a



It Places Him on the Job Early.

walnut. To catch a live alligator all that is necessary is to prod it with a long pole. The enraged animal seizes the pole with its jaws and will not release its hold until its attention is distracted after it is led into captivity. Nor does a man dare give in to the blues. If he does, his efficiency is sapped.

Those of us who occasionally indulge in the luxury of the BLUES should consider the happy face and good cheer of Mrs. Francis Clinton, who earns her living and is constantly bringing brightness into the world by shining shoes in New Orleans. Any able-bodied man who has given up hope would be ashamed if he watched the industry and patience of Grandmother Smith, who cobbles shoes in Cincinnati; or Miss Hattie Maddox, who has been in the employ of the Post Office repair department since 1889, and is one of the best workers there, even though blind.

We Wish More Readers Would Write Us with Criticism or Suggestion

One of my candid readers wrote me that he did not see how he was benefited by my August letter. Not knowing him personally, I am sure I cannot say if he was in need of what was in that letter, or being in need, if he would consider it as adapted to himself.

When I wrote most of that letter, I had a certain man in mind. That man needs to know and to utilize exactly what I said about the GROUCH. And there are others.

In giving me instructions the Editor said to me, "We want you to give our readers the best you can from your experience or observations. You know of the privileges and difficulties, the joys and the troubles of the people we are serving. Our aim is to be of help to each one in every possible way. We have a man on our staff who can best tell the one who wants to know, how to build a silo. We have another who better than anyone else can instruct how to draft a set of plans. We want you to give our readers any thought that will help them either in their business or in their homes."

If there is one thought in the August letter that will make only one of our friends a better man at home or at work, it will be justified. Some sermons don't do that.

One Man "Saw Dust" Helped

Did you ever get any saw dust in your eyes? It made you take notice. Didn't it? If only one bit of the verbal dust I saw out each month finds the right spot behind the optic, it may do you good.

I know one Kansas reader benefited from my July letter, in which I mentioned the service to a contractor of a motorcycle. This good friend became interested in a motorcycle when he read of it in my letter. He invested in one at once and wrote to ex-



For Pleasure as Well as Profit.

press appreciation of the suggestion given. If it were not for fear of being charged with being subsidized by Mr. Rockefeller to boost the sale of gasoline, I would give fifty-seven (57) good reasons why a man who can afford a motorcycle should have one as a business investment.

Why a Motorcycle?

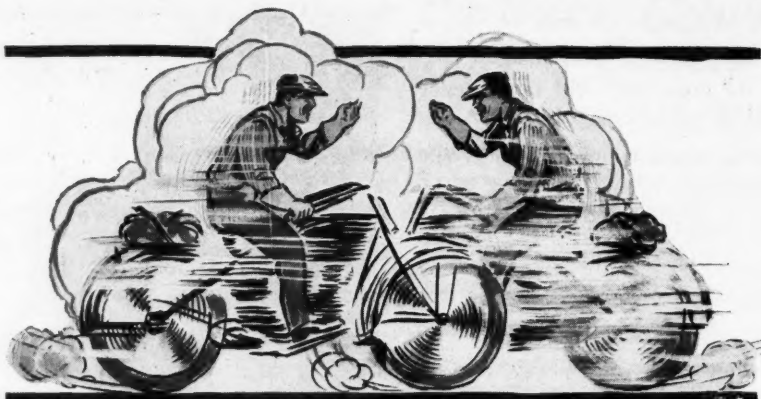
As it is, I will only touch on the edges. There never was a time when moments could be minted into money as rapidly as today by the right kind of men. The motorcycle helps this, and by annihilating space enlarges the possibilities of the owner. The cycle rider who works for a wage is worth more and earns more than the man who uses up time and strength in traveling on shank's mare.

The contractor who is so fortunate as to possess his own "streak-o'-lightning," and is hungry for maximum work, is in his office when the letter carrier makes his first delivery, and still able to be at job "A" by starting time. If he finds that some one's failure to deliver a gross of screws is holding up the work of two men, his gasoline horse will have them on the job before the quickest-moving dealer would have them laid out. It is still early when this rider of a flying steed is on job "B" to see that everything is moving right. If one of his men is needed

on some other job, his cycle carries double and the man is placed where needed without loss of time.

He soon earns the reputation of being able to be in two places at once. He gets around so fast he often meets himself coming back as he goes. He may spend several hours over plans and specifications and yet be able to go out in the country ten miles, to secure the contract for the new addition to Mr. F. Armer's house.

When he has a day free from other demands, he mounts his tireless (but well tired) steed and canvasses for new work. When he can quote on a silo



He Often Meets Himself Coming Back as He Goes.

to this man, a garage to that one, to every man according to his needs, is it any wonder that the man on the motor gets the business? It sometimes gives one that tired feeling to even consider the strenuousness necessary to stay in the game these days.

The motor cycle carries double, and when John's work is done he takes his Mary on behind and they have a jolly ride or go to visit friends. Life would be a barren waste without friends. Friends are more than money. May we deserve the friends we have. Deserving those we have, we will have more. Sincerely yours,

THE MAN FROM THE LUMBER YARD.

John Smith's Garage

HE SIZES UP THE PORTABLES AND THEN CALLS IN A CARPENTER—HOW A GOOD GARAGE WAS FINALLY BUILT.

WHEN John drove the new automobile home one evening last summer, it was the proudest moment in the history of the Smith family. For months they had saved the dimes and dollars for the purchase price and talked of visits to friends and country trips to be made after the dreamed-of machine became a reality. Never had the time dragged as it did between the date of the momentous order and the arrival of the car from the big factory in the East. And when John gave his check to the agent, there wasn't a very big balance left in the bank for the family budget until his salary came due at the end of the month. To tell the truth, he had been so absorbed in the idea of getting the car, that he hadn't given much thought to subsequent expenses. He guessed they would get along somehow.

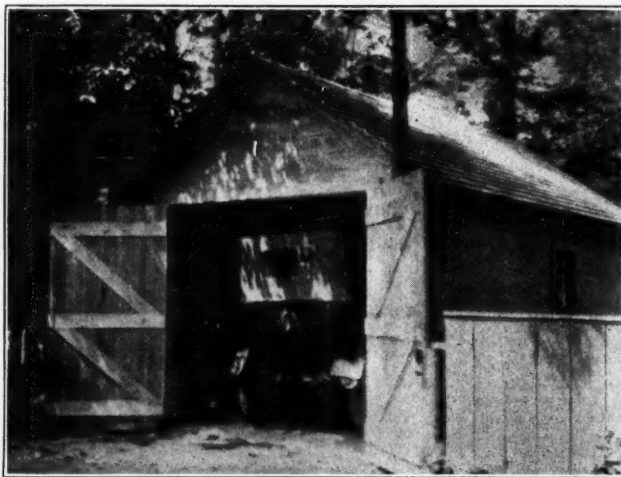
John drove the new car up to the curb at the Smith residence in one of the small suburban towns just outside of Chicago and it was jubilantly admired by his wife and the boys. Then they rode around a few blocks and up to the village garage, where they had planned to keep the car.

After dinner that night when they had somewhat recovered from the first burst of enthusiasm, John's practical wife began to ask questions about gasoline consumption, tire costs, accident and fire insurance, garage bills, and other items. She soon decided that the total upkeep every year if they drove much might easily equal the hard-saved amount which they had paid for the car to start with. Then Mrs. John began

to figure how these prospective big bills might be reduced. She knew that a car couldn't run without gasoline, oil and tires, and that they could not afford the risk of not having insurance, but the monthly garage charge of \$10 with \$5 more for cleaning and polishing the car would amount to \$180 the first year. Being handy with needle and sewing machine herself, this was as much as she spent for clothes in a year, and she looked well-dressed, too.

Why Not Save \$180 Each Year?

John's wife therefore suggested to her husband that if they had a little garage on the back end of their lot, the machine would always be at hand when wanted, they would be certain that no one was joy-riding

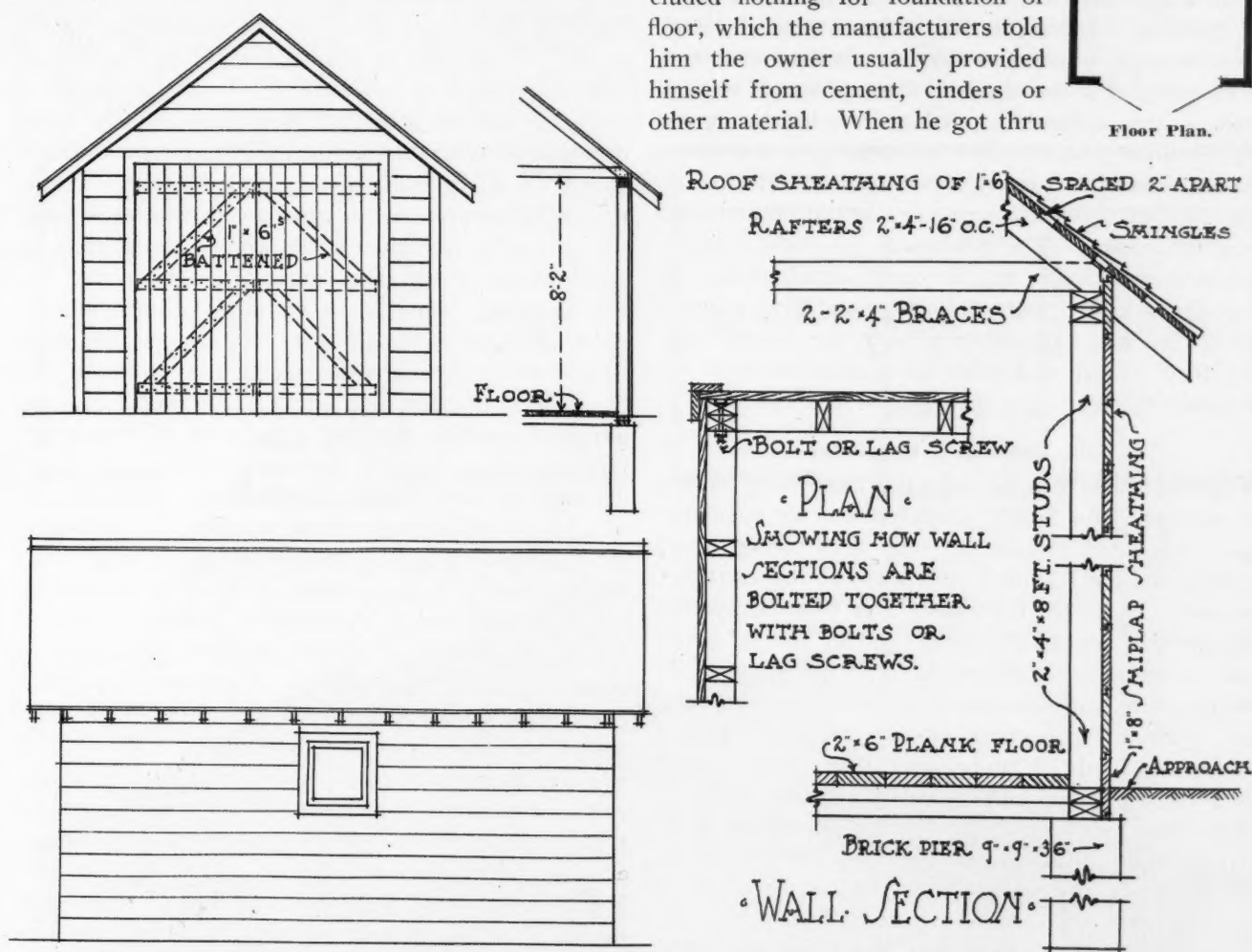


The Garage When Finished Was Snug, Secure, and Good to Look at—Cost Complete, \$97.00.

in it when they were not using it, and most important of all, John and the boys could clean the car themselves and thus save all of the \$15 a month, which should very soon pay for their own garage.

Since the Smiths don't own the place in which they live, John thought that a garage which they might build for themselves should be of the knock-down or portable type, so that it could be moved to a new site should the place of residence be changed next year. He had read the advertisements in the magazines and newspapers for portable garages, and was naturally inclined to buy a structure of the ready-made type. The advertisements told him that such garages were satisfactory in every way and also very cheap. Not

the conclusion that he needed a 12 by 18-foot garage, 8 feet high to the eaves, double doors at least 8 feet wide at one end, a small window on each side and a small entrance door in the other end. This was about as far as his ideas on the subject went. Going over the various circulars and catalogs stacked on his desk, he discovered that the cheapest quotation was from a prominent mail order house on a 12 by 16-foot, all steel garage at \$109, with \$4.50 freight to his station, or \$113.50, plus an unknown cost for drayage and setting up, which could not be calculated in advance. Moreover, this price included nothing for foundation or floor, which the manufacturers told him the owner usually provided himself from cement, cinders or other material. When he got thru



Elevations, Floor Plan, and Details of Construction of Carpenter Built Semi-Portable Wood Garage.

being a builder himself, John was inclined to take these statements at their face value. Soon after the family conference, therefore, he sat down and wrote letters of inquiry to the manufacturers of half a dozen of the widely advertised portable garages. The response in the way of personal letters, circular letters and catalogs from the manufacturers was prompt, and in most cases, complete.

John Finds That Portable Garages Come High

Using the material thus supplied, John Smith took his pencil and a sheet of paper and proceeded to do some figuring on his own account. He had come to

figuring out this proposition, therefore, John Smith was still a good deal up in the air. He was also not at all sure that he wanted a steel frame garage. Going a little further into the catalog of this same firm, he found that they quoted a 12 by 16-foot wooden garage with composition roofing for \$100.50, with \$10 freight and an unknown drayage and erection cost plus \$22 for a wooden floor in case he ordered it with the garage. This looked better, but it made the expense \$132.50, including floor, with no information as to how much the extra cost would be for erection.

John Smith next picked up from the pile of docu-

ments at his elbow the quotations for one of the most widely advertised all steel garages, 12 by 18 feet in size. This was listed at \$180, plus a quoted freight of \$7.67 to his station. No floor was included, and judging by the statements of the manufacturers, it would require the equivalent of one man's time for six days to set up the garage after it was delivered to his premises. The only thing he could be sure of, therefore, was that this wonderful all steel garage would cost him a good bit more than \$200 by the time it was completed. The same manufacturers also quoted him a wood frame garage with metal sides and roof for \$135.23, plus the still unknown charge for floor and setting up.

At this stage of the investigation John Smith began to question whether these widely advertised metal, portable garages were as cheap as he had imagined, so he returned to quotations of the ready-made wooden type. Three apparently reliable firms nearby quoted him absolute prices upon wooden garages, set up on his lot, painted and ready for occupancy. He had no question but that these structures would be first-class in every respect. The quotations for these garages, complete with floors and in every detail, erected in his own back yard, were \$150, \$160 and \$175, respectively. He was told definitely what they would cost, and they looked reasonable in comparison with the unknown factors in the ready-made steel types.

John Calls in a Carpenter

Having gone this far into the interesting subject of garages, John Smith wondered why he could not figure up a bill of material with a carpenter, order it from the local lumber yard and set the carpenter to work. He talked the matter over with a carpenter who lived a few blocks away, got an idea of about how many days' work would be required to build the structure, and likewise about the quantity of lumber required. The quotations per thousand feet of the various kinds of lumber carried in the local yard gave him a pretty good notion of the cost of material. These two rough estimates assured him conclusively that he could afford to take the chance of putting up the garage on his own account and forget all about the ready-made types.

The carpenter told him that by setting two studs instead of one at each of the four corners of the garage, and holding them together with lag screws it would be very easy to take the garage apart in sections and move it to some other site should this latter be desired. This settled the matter and he went ahead. No. 1, 2 by 4's were used for all the framing and rafters. The 2 by 4's spiked together made the sills; 2 by 6's were laid for the floor. No. 1, 8-inch shiplap was put on the outside, the roof boards were 1 by 6 No. 2, over which were laid the best grade of shingles. The carpenter made the double front doors from the same material as the rest of the garage. A small rear door and a couple of 24-inch windows were ordered

from the lumber dealer; while hinges, lag screws, galvanized nails for the shingles and other similar items were purchased from the local hardware store. The carpenter did the job complete in six days, with some help from John Smith's 12-year-old, who liked to drive nails. This was no more than the time required to assemble one of the all steel garages which John Smith had figured on, and even paying the carpenter the union wage of 75c per hour, his bill was only \$33.

When the carpenter left the job, therefore, the account for John Smith's 12 by 18-foot garage stood as follows:

Lumber and shingles.....	\$55.30
Door and windows	3.80
Hardware	4.90
Carpenter	33.00
	<hr/>
	\$97.00

The remainder of the job John Smith and the small boy proceeded to do themselves. They got a dollar's worth of heavy wire netting and a nickel's worth of staples to protect the windows. They paid \$1.80 for two loads of cinders which were tramped down in front of the entrance to make a good runway for the machine. They got a gallon of cement enamel paint and put it on the floor to protect the wood against oil and gasoline that might drop from the car. Then John decided that he might as well make his garage fire-proof. He had great faith in three-quarters of an inch of wood carrying a fire-resistant paint. Through a recent government bulletin, John learned of a fire-proof paint which had wonderfully well withstood laboratory tests in the protection of wood from fire, and since it was composed of a fire-preventive substance, mixed with the usual ingredients of a good linseed oil paint, he had no fear as to its durability when exposed to the weather. Therefore John got a dark green shingle paint of this character for the roof, a lead gray siding paint for the exterior, and a factory white interior paint of the same make for the inside of the garage, at a total cost of \$10. John and the boy applied this paint at spare times, and when they got through they had the satisfaction of knowing that they had a warm, durable, fire-resistant house for the new car at a cost of from 30 per cent to 90 per cent less than the quotations of the manufacturers on portable types.



Little Lesson in Efficiency

Utilize all your opportunities. If the bathtub leaks, keep the potted plants under it.—*Pittsburgh Post*.

Pat's Diplomacy

"What name" snapped the magistrate, as he glared at the prisoner.

"Patrick Casey, sorr."

"Hov ye ever been befure me befure?"

"No, your Honor, Oi've seen but wan face that looked like yours an' thot was the picture of an Irish king."

"Discharged!" announced His Honor.



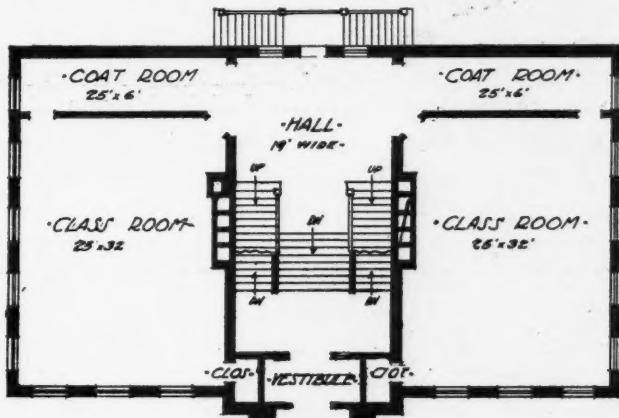
New School at Shermerville, Ill.

THE accompanying floor plans and perspective are of the recently completed school at Shermerville, Ill. It was designed by Mr. G. W. Ashby, the well known school house architect of Chicago.

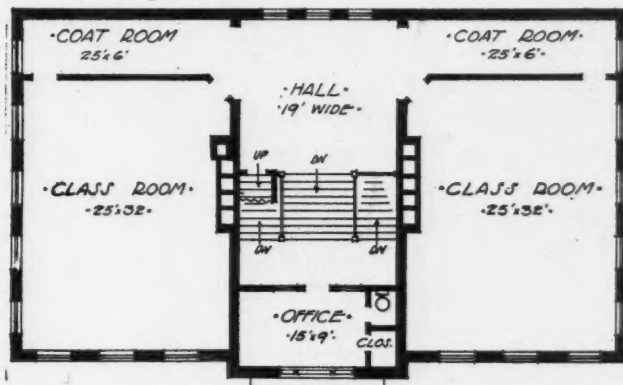
The exterior of the building is finished in face

brick with white stone trim. The construction is massive and substantial.

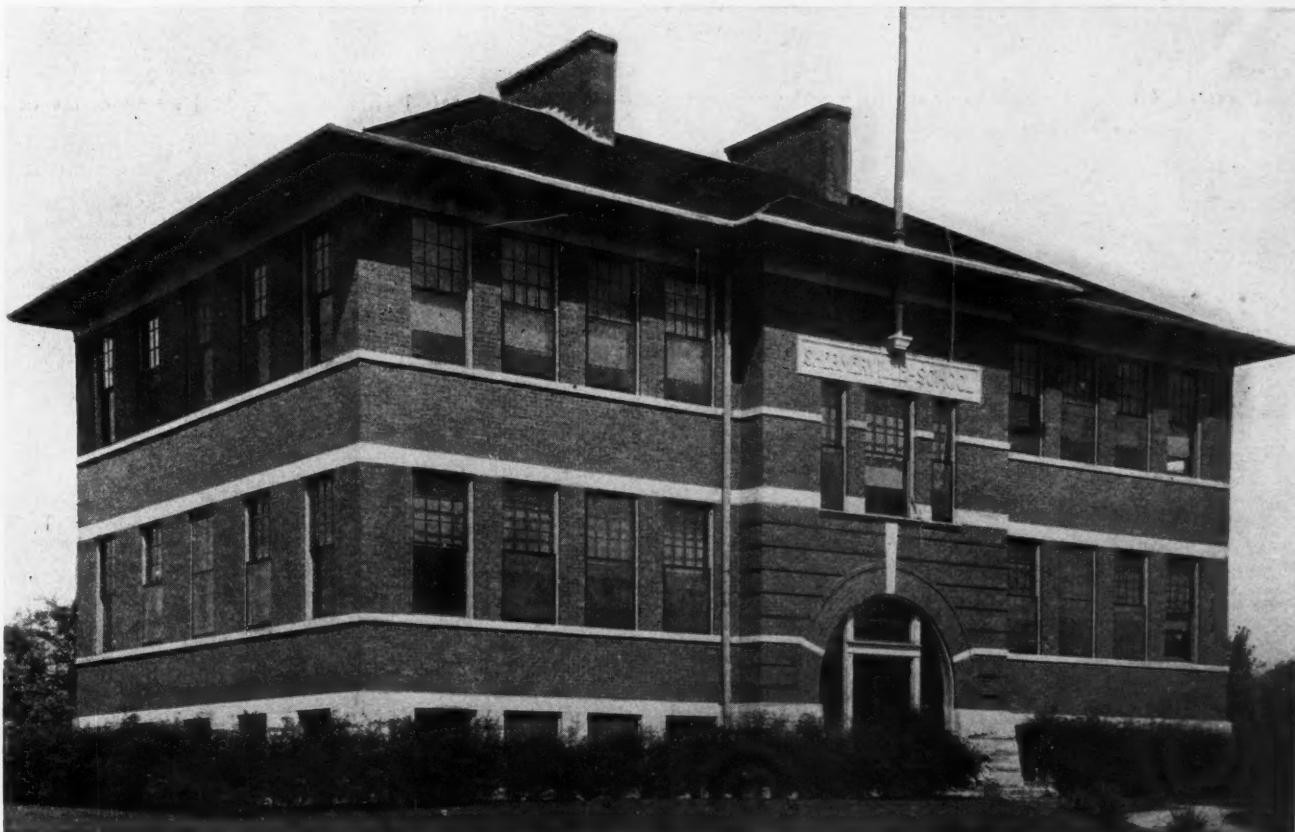
Each floor is equipped with two large class rooms and two coat rooms. On the second floor there is also an office which is placed over the entrance vestibule on the first floor. A large and well-lighted basement is also provided.



First Floor Plan.



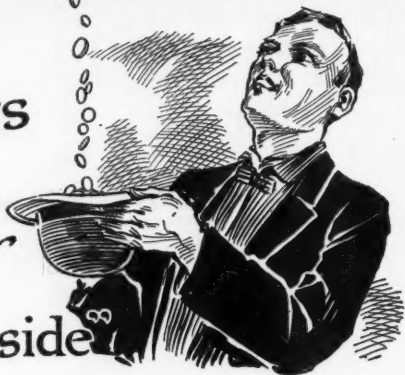
Second Floor Plan.



Beautiful Modern School Building at Shermerville, Ill. G. W. Ashby, of Chicago, Architect.

Extra Profits

How
Builders
make
Money
"On the side"



PRIZE WINNING LETTER

Possibilities of the Weather Strip Business

METAL weather strips have become recognized as essential to an up-to-date building or residence because they actually save money in heating bills—keeping out cold, wind, dust, dirt and storm. The architect and builder recognize their efficiency and therefore give them consideration.

It has taken years to convince the public of their worth, and thousands of dollars have been spent by the larger manufacturers to do so. Now that the demand has been created it has proven attractive as a selling and installing proposition. However, to make a success of it several things are essential. An investigation along these lines brings us up to the following conclusions.

First of all the party taking up this end must select a metal weather strip that has a responsible manufacturer behind it, who can produce facts and positive proof that the strip he turns out is doing all he claims for it. The proof in the form of letters of commendation from satisfied customers is the most convincing.

The installation feature is one of the greatest importance and requires an exercise of good judgment. The most successful workmen are experienced carpenters who know how to do a neat job, and who understand the fitting up of windows and doors.

Many manufacturers of weather strips have gotten out a complete instruction pamphlet which gives the most essential points, and this together with the model generally furnished by manufacturers enables any mechanic to do the work successfully. However, experience is quickly obtained on the first job of work.

The possible profits in this business are extraordinarily good, being large enough to cause you to "sit up and take notice." However, these depend greatly on your efforts as a salesman, together with the proper installation. There are men in this business who earn as high as \$12,000 per year. These men

have control of the larger territory and know how to get results. Some of these men were originally contractors and builders.

One of the interesting features of this business is the fact that you are not required to purchase any of the material until you have the actual orders for it, therefore you are simply investing your time against the other man's proposition.

To the man who goes at it to make a permanent business of it sales can be made the year round, but to the man who takes it up as a side line he will find it a great help in keeping him busy when his regular business is slack, and at a profit that will surprise him.

Among our advertisers you will find a number of weather strip manufacturers who are always looking for responsible agents. Get in touch with all of them. Get each one's proposition and then pick out the one that most appeals to you.

L. P. CARSON,
Columbus, Ohio.



Lightning Rods and Silo Roofs

AFTER a year's experience with the agency proposition as a side line to my building work, must say that it is surely a success. By selecting some line that follows your trade and is in demand in your community, it cannot help but bring extra profits.

Perhaps you may think you would not be a success as an agent; but I have found it just the other way, for this reason: Your client certainly has confidence in you when you get the contract for his building and he has confidence in you just as much when you come to sell him an article which he is in the market for.

I have the agency for the Barnett System Lightning Rods (Riverside, Iowa), and have rodded every building I have erected this summer and some other ones also. Will say right here you must have goods of good merit if you expect to build up a trade and keep it. I aim at having them just a little better than my competitors.

I also sell the Hoosier Silo Extension Roof (Goshen, Ind.), which is in good demand and makes a very efficient roof.

Again I say, select some line in good demand in your locality and bear in mind that with goods of merit and with honest work fair profits and success are assured.

A. N. SMESTEAD,
Carpenter and Builder,
R. R. 17, Beloit, Wis.



House Moving for Builders

TO my mind the moving of buildings is a side line or specialty that more contractors and builders should interest themselves in. It is a good money maker on its own account, besides frequently leading to other work, such as remodeling and building new. In regard to moving buildings, methods used, etc., will say that I have moved buildings for over 30 years.

First building I ever moved I made some rolls on the spot, used iron bars to turn the rolls, laid down planks for the rolls to run on, and after the building was moved out of the way, I and my father had the job of building a large old-fashioned timber barn in place of the building moved away.

Have moved buildings all kinds of ways; on rolls, on skids, especially in the winter when the ground was frozen hard. I once moved a house and a barn something like one and a quarter miles with a power capstan, simply drew them right along on the frozen ground. One day, I remember, the weather was very cold, nearly 30 below zero.

Have no idea of number of buildings I have moved in my lifetime; the number would go into the hundreds.

My method of going after business is, I believe, different from most. I have a record that few other men can point to. I never asked for a job in my life, moving buildings or carpenter work; the work always came to me. Someone that had seen me do a job undoubtedly sent the next job my way, and that has been my system of getting jobs.

Every job of moving I ever did, I could always see where I lacked some tools. Have tried to have tools for every job. Of late years I have done away with old style jacks, have purchased a set of four-wheeled steel giant trucks of the LaPlant-Choate Mfg. Co., of Cedar Rapids, Iowa. I can now load a house, for instance, on three bearings and move it in half of the time that I used to with old-fashioned tools, dispense with the planking on a great many buildings and carry the building with no strain or cracking of the plaster.

I guess I will have to send you some photographs of big barns I have framed and built in my lifetime, as it makes me smile sometimes to see the ideas advanced by some of your writers.

JOHN A. STANTON,

Master Mechanic and Champion Building Mover,

R. R. 2, Westport, N. Y.



Studding Sockets and Granary Elevators

I AM an interested reader of your valuable paper and am delighted every time it comes around, because I know that in its pages there is always to be found very valuable information that every hustling builder ought to know.

Your advertising sections certainly display grand opportunities for wide-a-woke builders in the way of agencies for goods that are used in the building lines.

There certainly are interesting offers for builders to "Make Money on the Side" in the way of handling agencies for goods that they use in equipping modern buildings in their locality.

I have the agency for the Ross studding sockets (Grinnell, Iowa) and the Meyer cup elevator (Morton,

Ill.), and will say that I have many satisfied customers and many "extra profits" that I have made in handling these goods. I expect to sell still more in the future, for anything that has good strong points, like the above, seems to impress prospective builders, inasmuch as it comes from the man that they rely upon, namely, their carpenter.

DESIRE J. KERGER,

Carpenter and Contractor,

St. Anne, Ill.



Has Agency for Metal Shingles and Ceilings

BEING a reader of the AMERICAN CARPENTER AND BUILDER, I wish to give you a few facts from my experience in the extra profits line. Four years ago my father took an agency for metal shingles and ceilings, for, being a carpenter and builder, he hoped to make some extra profits. And he certainly did. However, as he was not able to work at it this summer, and as I have been doing carpentry work for the past couple of years, he turned over his agency to me and let me try my hand at it. It has certainly proved a great success, for in the past six months my commissions have amounted to nearly \$100.00.

The way I did business was very simple; everything just seemed to come my way. When I put up a building, I usually got the job of putting on the roof, and then sometimes the same man had other buildings that needed repairing, and a few words at this time got me the order. Of course he was satisfied, and he told his neighbors, with the result that they also came to me to get their roofing done.

In regard to Extra Profits, you will readily see that an agency for metal goods certainly does well for the carpenter and builder, as it not only gives him his commissions, but it also makes extra work with good wages; for, once a business is worked up, you are usually kept busy.

Now as to the selling of this material, you really haven't any work at all. You simply recommend your line of goods, and if you talk in a good, honest way with your neighbors, you get the job instead of the man from town.

We live in the country and our carpentry work keeps us busy at least six months of the year, and I find that there is no easier way of making money on the side during spare time than selling metal roofing and other goods. The winter is usually the best time for rounding up this kind of business, and you can certainly turn your spare time into cash.

Trusting that these few words will help some other doubtful reader of your valuable paper to decide what he can best put his spare time to, I remain,

A. I. MUNROE.

(Address withheld by request.—Editor.)



CEMENT BUILDING CONSTRUCTION

Timely Suggestions for Winter Concreting

PRE-HEATING MATERIALS—USE OF SALT AND OTHER ANTI-FREEZE MIXTURES—PROTECTION OF CONCRETE IN THE FORMS—EXTRA TIME REQUIRED FOR SETTING

By H. Colin Campbell, C. E.

ALTHOUGH building activities in general show some falling off during the winter months, the tendency of late years has been to devise and apply all possible means to promote continued activities during what used to be accepted as the dull season. There is considerable advantage in doing this, since a contractor may keep his efficient hands profitably employed, thus maintaining the effectiveness and personality of his organization.

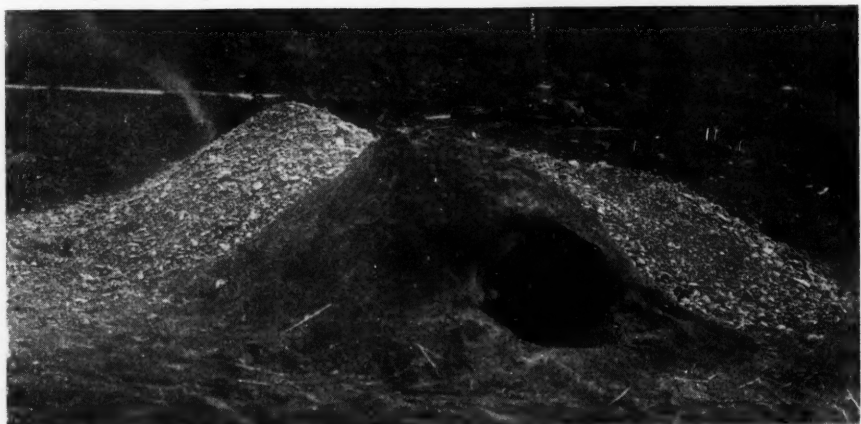
Not many months ago, concrete work was practically suspended on the approach of cold weather. Experience has disclosed the possibility of carrying on a great deal of concrete construction even during freezing temperatures, provided certain precautions are taken to make working conditions duplicate as nearly as possible those which prevail during the summer. Concrete hardens under most favorable conditions when the proper degree of heat and moisture are present. Moisture means water, therefore the first precaution to take in cold weather concreting is to prevent the water in concrete mixtures from freezing. There are two ways of doing this. First, some such substance as salt or chloride of lime may be added to the mixing water to lower its freezing point. Second, the sand and gravel or broken stone and mixing water may be heated so that the concrete when mixed will have a temperature not lower than 80 degrees, Fahrenheit, then immediately depositing the concrete in forms that are free from ice and snow and properly protecting the concrete so as to retain the heat introduced through heating the materials until the early hardening period has been passed.

Adding salt or any similar compound to the mixing water, while lowering the freezing point and thus affording certain protection, is effective only against moderate degrees of cold, that is, for temperatures which do not go below 22

degrees Fahrenheit, since there is a practical limit to the quantity of salt which may be added without affecting the subsequent strength of the concrete. Another objection to using salt, chloride of lime, or compounds intended to accomplish the same purpose, is that this practice defeats early hardening, which is extremely desirable.

Heating materials (the cement need not be heated as it is only a small portion of the mass), accomplishes the desired ends, provided, of course, sufficient covering or protection is afforded to the freshly placed concrete, thus insuring that this added heat will be retained for not less than 48 hours. Construction such as exposed floors or pavements present naturally a large area and will require some added protection beyond what is necessary for foundation walls below ground level, abutments, and massive construction, especially when placed in heavy forms. The top surface of concrete in forms should be covered with a protective layer of building or similar paper, then with 10 or 12 inches of straw or dry manure, which will give all the added protection necessary if materials have first been heated as suggested.

An old smokestack can be used to improvise a stove in which fire can be built and around and upon which the materials can be piled for heating. Mixing water can be heated by steam or in large pots or kettles.



Old Sheet Metal Culvert Makes Salamander for Heating Sand and Gravel.

Aggregates should not be heated above 150 degrees as there is possibility of injuring the materials.

Protection to vertical surfaces of walls where the forms do not furnish sufficient protection may be given by furring the forms and tacking building or tar paper on the furring strips, thus introducing an air space that provides insulation sufficient to make a difference of 15 degrees between outside temperature and temperature in the furred space. Frames can be erected 10 to 12 inches from the outer face of forms, and the intervening space packed with manure or straw. At any rate, freshly placed concrete should be kept at a temperature that will prevent freezing until the early hardening period has passed. This may vary from 48 hours to four or five days.

CAUTION—Don't Remove Forms too Soon

Finally, form removal should be deferred for a longer period than would be usual in summer. Examine the concrete carefully to make certain that what appears to be thorough hardening is not really the result of freezing. Frozen concrete and thoroughly hardened concrete on casual inspection have a striking resemblance. They will both give forth a ring when struck with a hammer. Turning the flames of a blow torch against the concrete surface will show whether there is water in the form of ice in the concrete and disclose its condition so that one can safely decide on the advisability of removing forms. Play safe by



Heater Coil Over Open Fire for Heating Mixing Water.

leaving them in position for some time longer than may seem necessary and particularly for some time longer than would be practiced with similar construction in summer.



How Long Should We Mix Concrete?

IN mixing concrete by hand, laborers are impressed with the necessity of turning the materials with shovels several times before adding water, and several times after adding water. Little consideration has been given, however, to the time required for thoroughly mixing concrete when using a

machine mixer. In other words, we have depended upon the mixing machine not only to do our work, but also to furnish the brains.

A fundamental principle of concrete mixing is that every grain of sand shall be coated with neat cement, and every piece of gravel or broken stone entirely encased in sand-cement mortar. Thus only can concrete be expected to develop the maximum



Heating the Water by Steam From a Boiler.

strength possible with the particular mixture.

In using a batch mixer the order in which materials are introduced in the drum is not of vital importance. However, in charging a mixer with a skip there are reasons why it is better to place a part of the coarse aggregate in the skip first, then the cement and fine aggregate, with the remaining coarse aggregate on top. In charging in this manner there will be less tendency for materials to stick when dumping the skip, and less loss of cement on windy days. However, this is simply a suggestion for mechanical procedure and really has nothing to do with the thoroughness of mixing.

If dry materials are introduced into the mixer first they should preferably be thoroughly mixed before water is added, and this generally would seem to be the better practice.

For a long time nearly every one seemed to be satisfied with pulling the engine lever and holding the watch beside it for 45 seconds, implicitly trusting that the mixer would "do the rest." Recently some experimenters have been investigating the matter, and they find considerable variation in results accomplished in the 45-second mixing period. Some people run their mixers too fast and centrifugal action causes the materials to cling to the drum instead of falling and being tossed about the deflectors in the manner necessary to secure a thorough mixture. Then, of course, some people run mixers too slowly.

Probably the most exhaustive tests that have

been made in mixing and preparing concrete for use were those conducted by Richard L. Humphrey and his associates under the direction of the United States Geological Survey, at the Structural Materials Testing Laboratories in St. Louis. Technologic Paper No. 2 of the Bureau of Standards states that all concrete was mixed 2 minutes dry and 3 minutes wet. While not practicable to continue mixing for periods so long as these in commercial work, it is interesting to note that, in the tests mentioned, the ultimate strength of 2,000 pounds per square inch for a 1:2:4 concrete at the age of 4 weeks (frequently the basis for unit stresses) was exceeded by almost 50 per cent for granite and gravel concrete and by 25 per cent for limestone concrete.

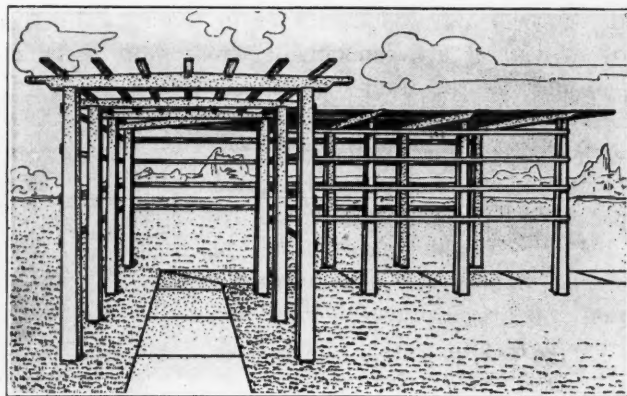
More careful contractors are now increasing the time of mixing, after all ingredients including water have been placed in the drum, from 45 seconds to 1 minute, knowing that the additional 15 seconds result in a cheap means of securing a guarantee of increased efficiency of the concrete.



Concrete Arbor or Pergola

FOR one who desires to enjoy some of the picturesque of a pergola in landscaping a portion of the home grounds, the accompanying drawing suggests a design that represents both simplicity and moderate cost. Of course more ornate construction involving complicated forms and a greater quantity of material can be worked out, but these usually fail to meet average requirements because of increased expense. The design may also be easily adapted to use

as a grape arbor and of course can be lengthened or shortened or laid out in different plant to meet individual needs or desires. It represents unit construction, which is a decided advantage in that the posts and beams may be cast anywhere and later set up in



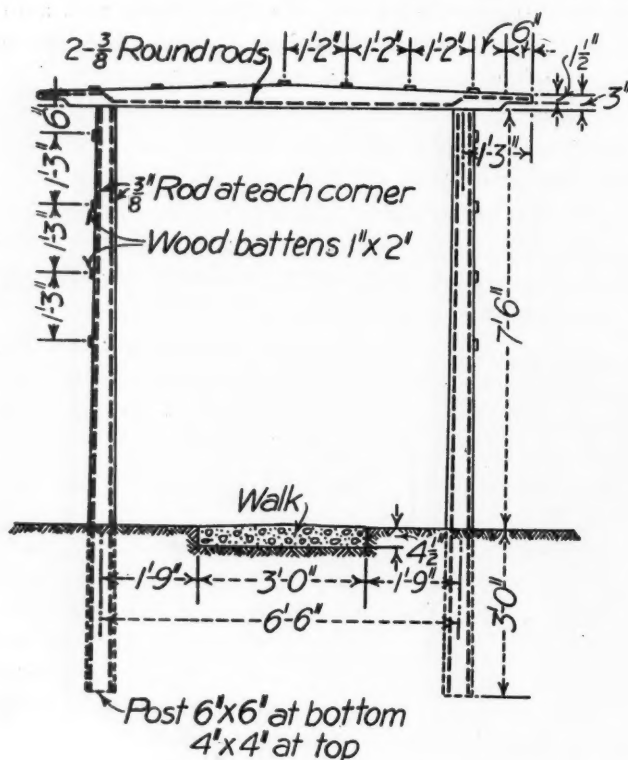
Author's Sketch of Right-Angle Pergola of Reinforced Concrete.

place just as ordinary fence posts would be handled.

The sketch showing end elevation gives sufficient details of construction to require no special explanation. It may be mentioned that there should be embedded in the upper end of each post when cast, a $\frac{1}{2}$ -inch round rod 8 inches long, $1\frac{1}{2}$ inches of which is left projecting beyond the end of the post so that it will engage or fit a hole in beams, thus holding them in place as they span from post to post.

Corner posts should be 8 by 8 inches at the bottom and 6 by 6 at the top. The beams are 2 by 3 inches with two $\frac{3}{8}$ -inch round rods laid $\frac{1}{2}$ inch from the lower face and bent up into the ends as shown. Posts intermediate to corner ones may be 6 by 6 inches at the bottom and 4 by 4 at the top. All posts should be constructed of a 1:2:3 concrete in which the coarse aggregate is graded up to a $\frac{3}{4}$ -inch maximum. On account of the size of beams and the reinforcing recommended, a 1:2:3 mixture in which the coarse aggregate does not contain particles larger than $\frac{1}{2}$ inch in greatest dimension, should be used in casting beam members. Wood battens are shown as slats on the side and top of this construction. These may be attached by drilling small holes into the concrete posts and beams after they have thoroughly hardened, and driving a small wooden plug into the hole to nail into.

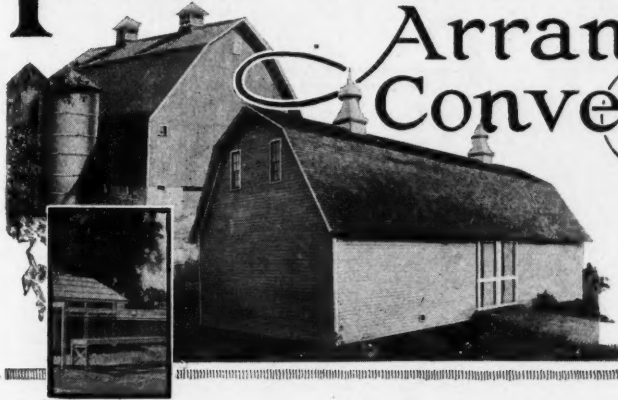
In casting posts or beams such as are suggested for this construction, particular care should be taken to protect the concrete in the molds and after removing molds, so as to allow thorough hardening before any attempt is made to handle or set up the posts or beams. If steam rooms are used under proper conditions for "curing" the products, it is probable that the posts and beams could be set up 15 days after casting. Where water curing by sprinkling is practiced, however, the concrete should be allowed to harden under suitable condition for 30 days before being set up.



End Elevation of Pergola, Showing Details of Construction.

FARM BUILDINGS

Arranged For Convenience -



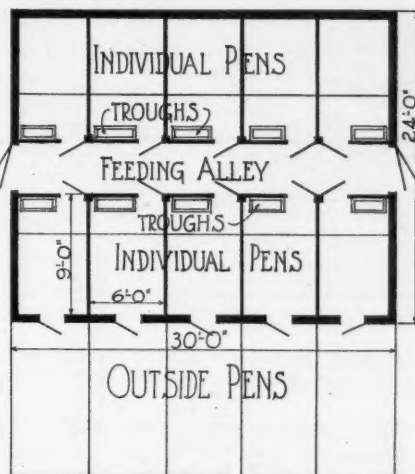
Wisconsin Hog House—Saw Tooth Roof

A winter hog house designed for the more northern hog growing districts is shown in Design A317.

The height of the windows and the slope of the roof are planned to admit the greatest possible amount of sunshine into the hog nests during the early months of spring when sunshine is most needed and difficult to get.

This hog house is 30 by 24 feet in size. It is low at the eaves, but quite high at the highest part of the roof.

There are ten individual pens, each six by nine feet in size, which is large enough for a sow and litter of small pigs. Each pen has a gate opening into



Floor Plan of Hog House No. A317.

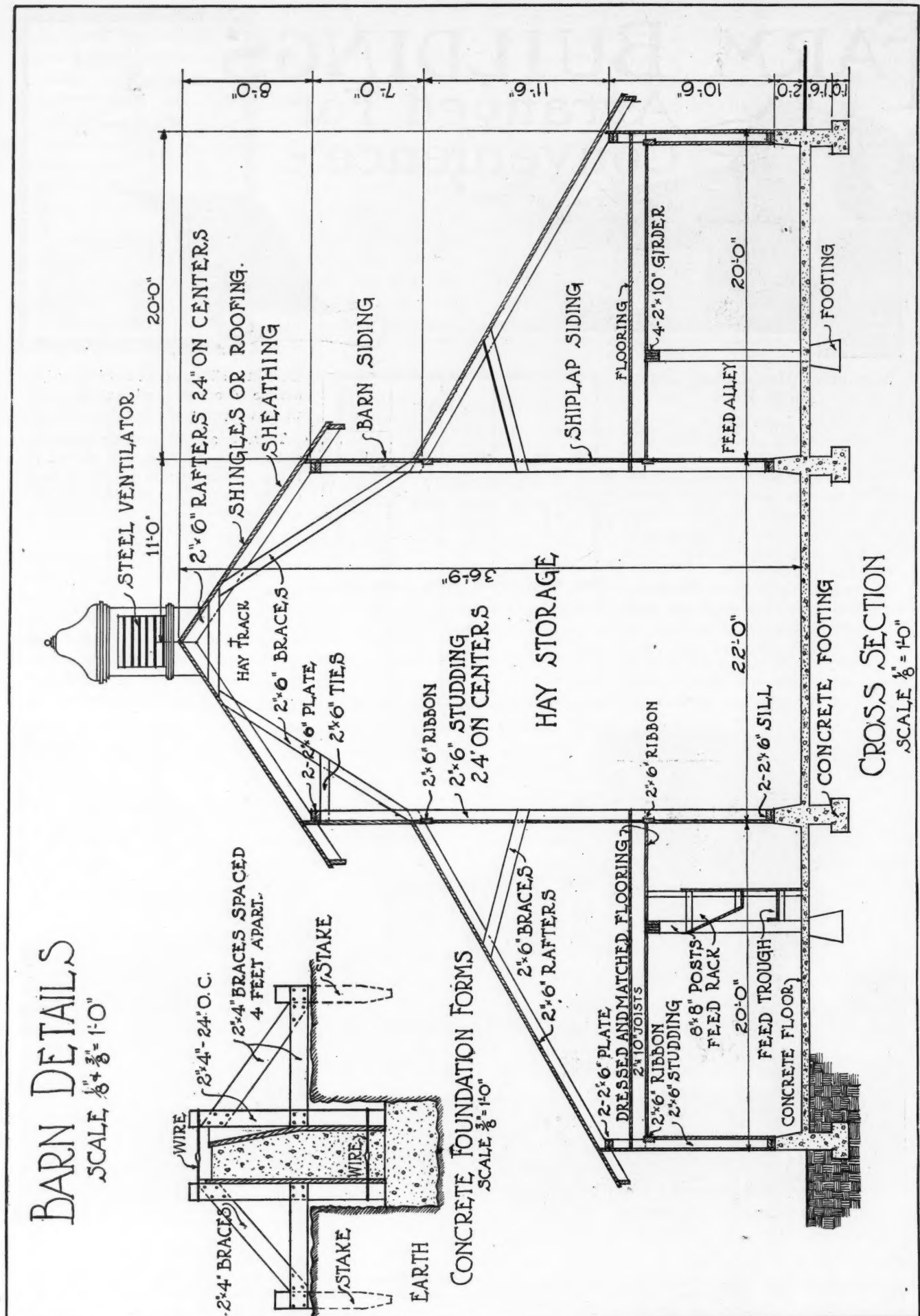
the center alley and the south pens have outside doorways and outside yards, where the pigs may run out for exercise.

There is a good concrete foundation and concrete floor the full size of the house. Each hog trough is made of cement mortar in a mould, and has a rather wide base, so it is impossible for the pigs to root them over.

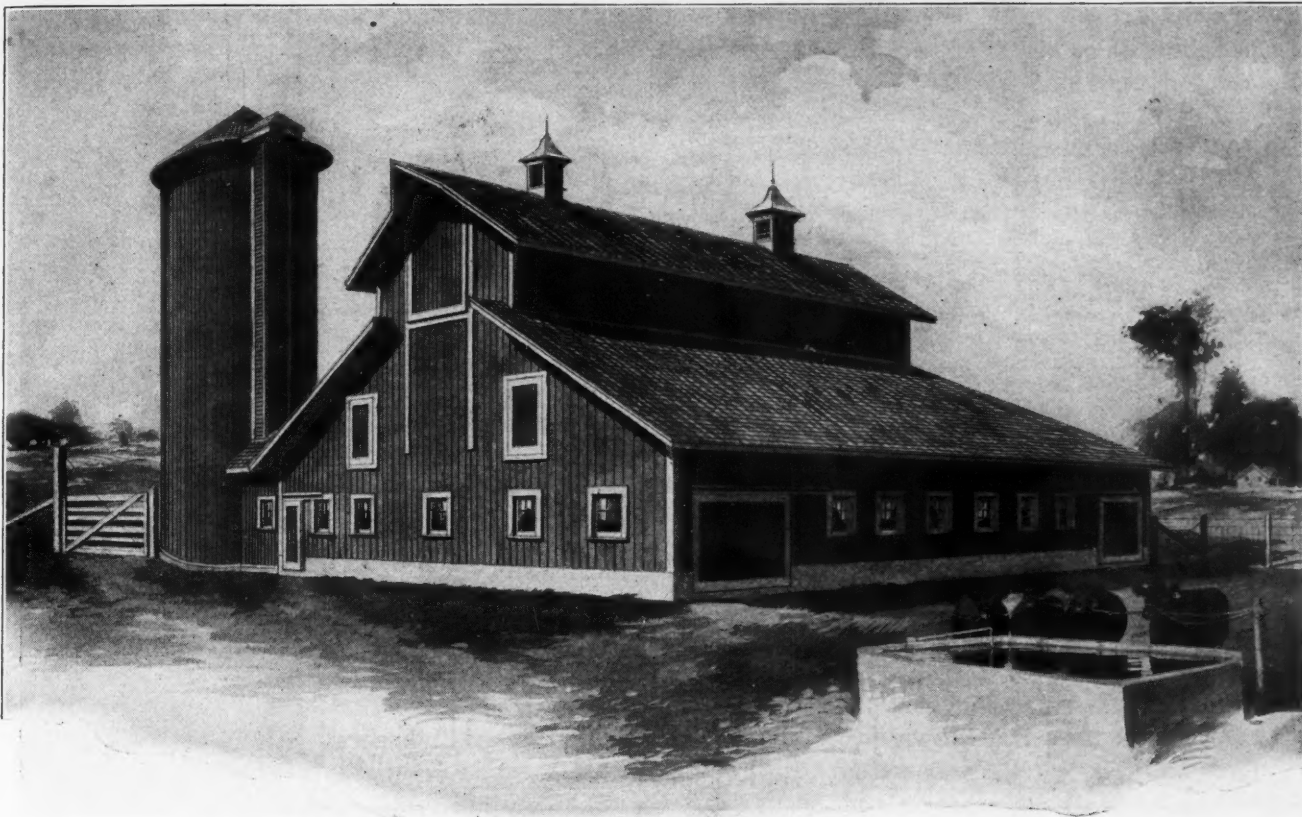
The building above the foundation wall is built in the usual way, using 2x4 studding, covered with building paper and drop siding, care being taken to lap the edges of the building paper and to work it carefully around the corners and piece it in around the window frames and door frames.



Wisconsin hog house of saw-tooth roof design containing ten pens, each 6 by 9 feet. Upper windows light back row of pens. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$5.00 per set. When ordering, ask for Design No. A317.



DETAILS OF CONSTRUCTION OF MONITOR ROOF STOCK BARN DESIGN NO. A303. ILLUSTRATED ON OPPOSITE PAGE.



Monitor Roof Stock Barn, 62 feet wide by 80 feet long. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$7.00 per set. When ordering, ask for Design No. A303.

Monitor Roof Stock Barn

A beef cattle barn, 62 feet in width by 80 feet in length, is shown in Design A303.

Storage for roughage reaches from the concrete floor to the peak in the center of the barn and spreads over the floor of the wings over the cattle on both sides and at the far end.

The center part of the barn above the concrete foundation is built of upright posts, which reach to the plates and are braced in the usual

way. This construction permits easy moving of hay by rolling it down from the high center. Outside of the center area the barn is floored to make the stable warm and to extend the storage for straw or other roughage clear to the low roof at the sides. All hay and roughage is taken in by horse fork through the large hay door, or blown in by the stacker at threshing time.

By noting the size and width of this floored storage area it will be noticed that these wings afford considerable mow room, which added to the deep center bay will hold a great deal of alfalfa hay or other feeding and bedding roughage for winter use.

Besides the outside concrete foundation wall the whole stable is floored with concrete and fitted with feed racks, which extend all the way around the bay. There is a feed alley between the feed racks and the sides of the center bay. This feed alley has an overhead hay and silage carrier track which goes all the way around the deep bay, making it

easy to scatter silage into the manger under the feed racks.

The mangers are quite low so the cattle reach down for the feed. This permits placing the hay racks low enough down so the cattle can reach their feed easily.

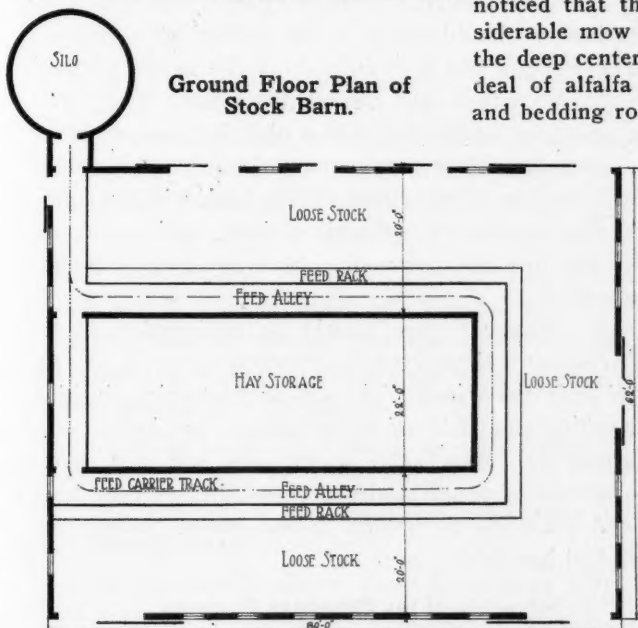
There are five stable doors which are wide enough to permit a manure spreader to be driven through, so the manure may be removed with the least possible amount of hand labor. The space outside of the hay bay is 20 feet in width on three sides; part of this is taken up with a feed alley and feed racks, but there is over 300 feet of outside wall, which gives the cattle considerable room to move about.

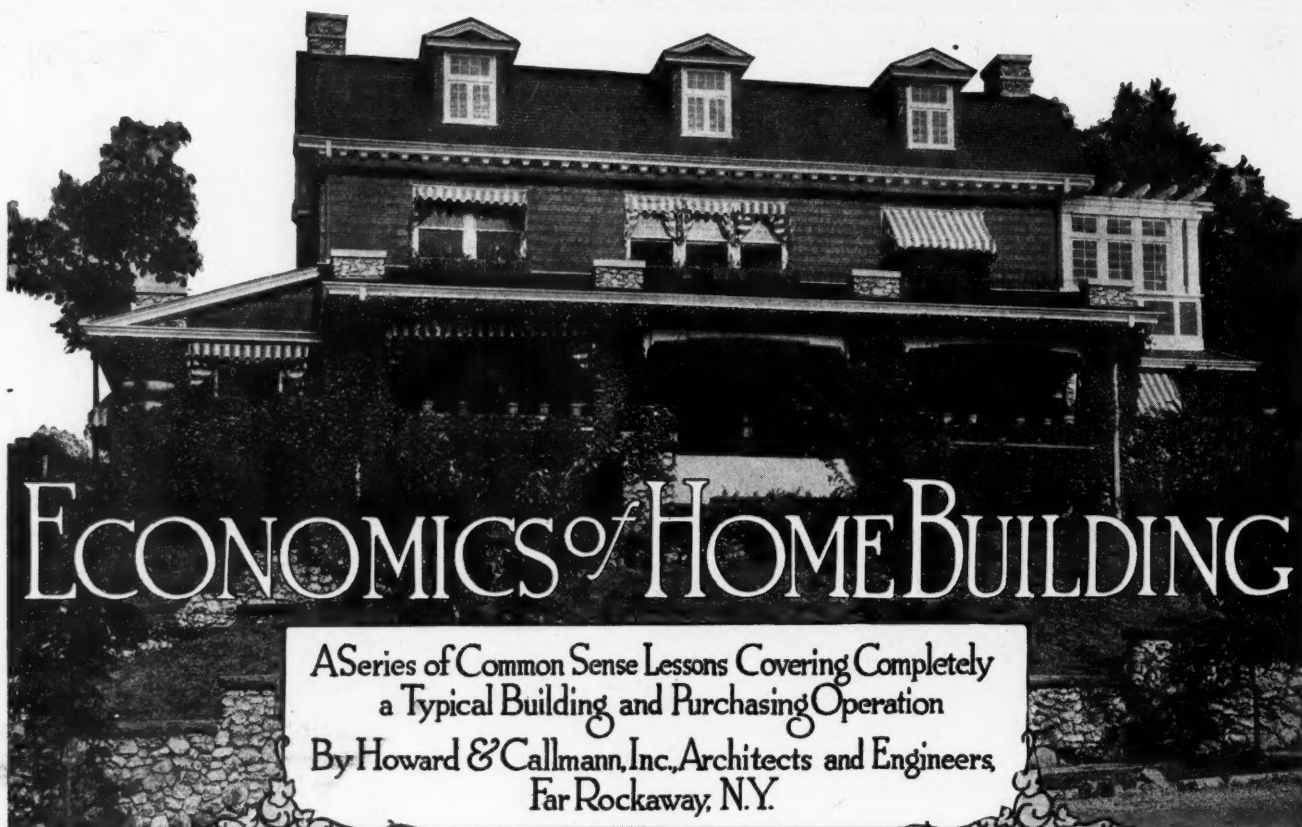
The arrangements for stock feeding are very satisfactory to stockmen who have tried this plan. It gives a shed that may be opened in mild weather and made close in cold weather in winter.

There are sufficient windows to admit light at all times.

The feed, both silage and hay, are convenient and easily handled, so that the animals may be properly cared for from spring to fall and at the least possible expenditure of labor.

There are two good ventilators on the roof, which pull a draught no matter which way the wind blows.





IN TWELVE PARTS—PART XI

Plumbing and Electric Wiring Principles Explained

THE following information about plumbing is intended as a guide, and is not given in specification form.

Plumbing

Sanitary Code. Most cities and towns have a code of plumbing "Rules and Regulations" which define the kind and quality of material that must be installed in buildings. It also describes the method of installation, stating the weight and sizes required for the piping. Inspectors are sent to the building during construction, to ascertain if the work is being carried out according to the code.

If a building is to be erected in a territory where there is no established "Sanitary Code" it is advisable to procure the code of the nearest town or city having similar sanitary conditions and follow it.

Sewer Pipes. It is customary for the Plumber to dig the trenches in which the sewer and water pipes are laid—at the point where the sewer passes through the foundation the cutting should be done without injury to the wall. After the pipes are laid the trenches must be filled in with earth and tamped down.

Water Supply. A connection is made from the street water main for the house service by a $\frac{3}{4}$ " lead pipe, terminating at the property line with a shut-off valve enclosed in an iron curb box.

It is usual for the Plumber to pay the water com-

pany for the connection to their main.

General Instructions for the Installation of Plumbing—
Selecting Plumbing Fixtures—General Instruction for Installing Electric Wiring—Best Arrangement for Lighting—
Selecting Gas and Electric Fixtures

pany for the connection to their main.

From the property line a galvanized iron pipe is run to a meter in the building, and from this the water is distributed to the various plumbing fixtures. The supply pipes should be protected against freezing. Pipes laid under tiled bathroom floors should be of lead, as in case of settlement the lead pipe will give to some degree and reduce the danger of breaking.

Lead pipes should not be embedded in the concrete upon which the tile floor is laid, as the action of the cement will corrode and weaken the pipes. The concrete will prevent the hot water pipe from expanding in its diameter, which may cause leaks.

Back Air or Vent Pipes. The back air or vent pipes are usually of galvanized iron, and are run above the roof to carry off foul odors and prevent syphonage.

Traps. Every fixture should be equipped with a trap or water seal, which is a precaution against odors.

Soil or Waste Pipes. The soil or waste pipes inside the building should be of extra heavy iron pipe.

Testing of Pipes. The water, gas, soil and vent pipes should be tested under pressure before they are covered over, to determine if the entire system is water and air tight.

Selection of the Plumbing Fixtures

It is advisable to select the plumbing fixtures before

the Plumber starts his work. A catalog can be obtained from any plumbing supply house and a selection made from the photographic half-tones. As soon as the Plumber is informed as to the type of fixtures selected, he can "lay out" his rough plumbing; locating accurately all waste, soil and water supply pipes, so that when the fixtures are set a very slight adjustment to the supply and waste outlets will be necessary.

If desired, the fixtures can be seen at the supply company's show-rooms. Any change in the selection should be made before the plumbing pipes are set in the building.

Iron Enameled Ware. Iron enameled bathtubs, sinks and lavatories are good, serviceable and reasonable in cost. The enamel may occasionally chip off in places, but the fixtures are indestructible. Iron enamel bathtubs are sold with one, three and five year guarantees, for which insurance the Owner pays an additional sum in the cost of the fixtures.

Porcelain Fixtures. There is a degree of solidity and richness in bathtubs, lavatories, sinks and wash-tubs made of porcelain. There are commercially three grades of these goods—viz.: "A," "B," "C."

Classification of Porcelain Ware. Each fixture is graded as follows:

- 1st: Regularity of size.
- 2nd: Evenness of finish.
- 3rd: Uniformity of color.
- 4th: Absence of blemishes, cracks or chips.

Fixtures judged most perfect according to the above standards are classified as "Class A." Those with slight imperfections as "Class B," and the remainder "Class C."

"Class B" goods in many cases have slight imperfections that are hardly perceptible. The saving in cost by purchasing "Class B" goods is an item.

Location of Plumbing Lines. For economy the plumbing fixtures should be arranged with as few vertical pipe lines as possible. Bathrooms should be placed over each other. Pantry and kitchen sinks should be grouped together and if possible located under the bathrooms above.

All pipes should be installed so that the fixtures can be readily cleaned. The water lines to each bathroom, kitchen and pantry should have separate shut-off valves in the cellar in case of leaks.

Nickel Pipe and Fittings. The exposed pipes and faucets should be of heavy brass nickel-plated. Poor plating wears off quickly and has to be replaced.

Bathroom Fittings. On the tile walls of each bathroom there should be placed:

- Two glass towel bars about 30 inches long.
- One glass shelf 18 inches long.
- One combination soap dish and toothbrush holder.
- One paper carrier.

The Plumber should set these fixtures as it is difficult to drill the tile walls and set them securely.

Kitchen Ranges and Water Heating Equipment

The following fixtures should be set in the kitchen:

A single oven coal range with upper hot closet for heating plates and warming food.

A gas range with three regular burners, one giant and one simmering burner—lower oven, end shelves and upper warming closet.

(If desired a combination coal and gas range can be installed.)

A 60-gallon galvanized iron boiler, set on an iron stand and attached to the water-back of the range.

A double copper coil gas hot water heater, attached to the kitchen boiler to obtain hot water for all the fixtures, when the coal range is not in use.

Instantaneous Gas Hot Water Heater. If it is desired to supply hot water instantaneously to the fixtures, a special gas water heater can be set in the cellar, which will automatically heat the water when a faucet is turned on, and when it is closed shuts off the gas.

Gas Pipe and Outlets. Gas pipe and fittings should be run to the outlets indicated for gas on the drawings, wrought iron pipe should be used and securely fastened to the studding.

To obtain the maximum efficiency and uniform pressure of the gas, the horizontal pipes must be set with a continuous pitch to drain back any water which may collect in the system.

If gas logs are required for the fire-place a shut-off valve must be provided and set on the hearth.

If desired, outlets can be left in the wood base for gas radiators.

Vacuum Pipe. A 2½" wrought iron galvanized pipe should be run up from the cellar through a central partition, leaving an outlet in the wood base on the first and second story halls for the vacuum cleaner.

Hose Connection. A garden hose connection should be provided at front and rear of the house with shut-off valves in the cellar to prevent them from freezing in the winter.

Leader Connection. The rain water leaders should be connected by the plumber to the sewer or to casks.

THE following information regarding electric wiring is intended as a guide, and is not given in specification form.

The electric wires should be enclosed in iron pipes or flexible lead tubing, concealed in the walls or between the floors and connected to stamped metal outlets and switch boxes in the various rooms.

Number of Lights in Each "Circuit" or Branch. The location of the fixtures and the number of lights desired should be determined before the circuits are laid out. A circuit consists of twelve 16 candle power lights. A central distribution box is set in a convenient location in the building, to which the current is supplied from the outside. To this box the circuits are connected and the current is distributed to the fixtures in the building. Each circuit should be

supplied with fuses and cut-off switch—in case any circuit becomes out of order it can be cut off without affecting the other circuits.

In arranging the circuits it is advisable to wire ten lights to each circuit, so that additional lights can be added if they are required at any future time.

Schedule of Electric Outlets For the Plans Accompanying Part III. (Dec. 1914.)

Below is a schedule stating the number of electric fixtures, the number of lights in each fixture, and the necessary switches.

Center fixtures are secured to the ceilings.

Side brackets are secured to the side walls.

FIRST FLOOR

Location	Types of Fixtures	No. Lights in each Fixture	Switches
Piazza	Center	One	One
Entrance Hall	Center	Two	3-way
Living room	Center	Four	One
Living room	2 side brackets	One	
Living room	Base receptacle	One	
Sunroom	Center	Three	One
Dining room	Center	Four	One
Dining room	2 side brackets	One	
Butler's Pantry	Side bracket	One	
Kitchen	Center	One	
Kitchen	1 side bracket	One	
Cellar	2 side brackets	One	One
Cellar	1 outlet for vacuum cleaner plant	Independent circuit	Two

SECOND FLOOR

Hall	1 side bracket	One	
Main Bedroom	Center	Two	One
Main Bedroom	Dresser light	One	
Main Bedroom	2 side brackets	One	
Main Bedroom	1 base receptacle	One	
All other Bedrooms and Bathrooms, each	1 side bracket	One	

Extra Outlets and Switches. The schedule given can be modified to suit special requirements. It is advisable when drawing up the contract to stipulate a sum for which the Contractor will install any additional side, center, base outlets and switches, in case the Owner desires more than are included in the contract. Should any extra outlets be required they should be installed before plastering.

Combination Gas and Electric Fixtures. It is unnecessary to have combination fixtures for ceiling lights where the gas is used only in an emergency. Combination side brackets will be sufficient for use in case the electric current is temporarily shut off.

Switches. The switches should be of the flush push button type, with bronze or brass face plates to match the finish of the hardware.

A Three Way Switch. A three way switch when attached to a fixture controls the light from two points in the house. It is generally used on the light in the entrance hall, by which the fixture can be lighted when entering the house—put out from the second floor hall, and vice-versa.

A switch should be provided in the first and second

floor halls to operate the motor of the vacuum cleaning plant in the cellar.

Base Receptacles. A base receptacle is an outlet provided for the use of portable lamps and vacuum cleaners.

Dressing-Table Light. The dressing-table light should be located about 3' 0" out from the side walls of the room and provided with a "chain pull" socket, which takes the place of a switch.

Purchasing Fixtures. Fixtures attractively designed and neatly put together materially help the appearance of the house.

A definite amount should be set for the purchase and installation of the gas and electric fixtures. Proposals should be obtained from a number of manufacturers describing the best fixtures each would supply for the amount stipulated. Samples of the actual fixtures can be seen in the manufacturer's showrooms.

Electric Bell Work

Bells and Speaking Tubes. Electric bells with metal push buttons to match the hardware finish should be set with dampproof wire to batteries and annunciator in the kitchen, connecting with the front and rear doors, the dining room and second floor hall.

A buzzer should be set in the butler's pantry connecting with a floor push button under the dining room table.

For convenience a speaking tube is necessary from the second floor hall to the kitchen.



Dining Room Detail Sheet

WORK OF RALPH W. ERMELING, ARCHITECT

This interior shows a well arranged and artistic dining room, the second design shown in this series of house interiors.

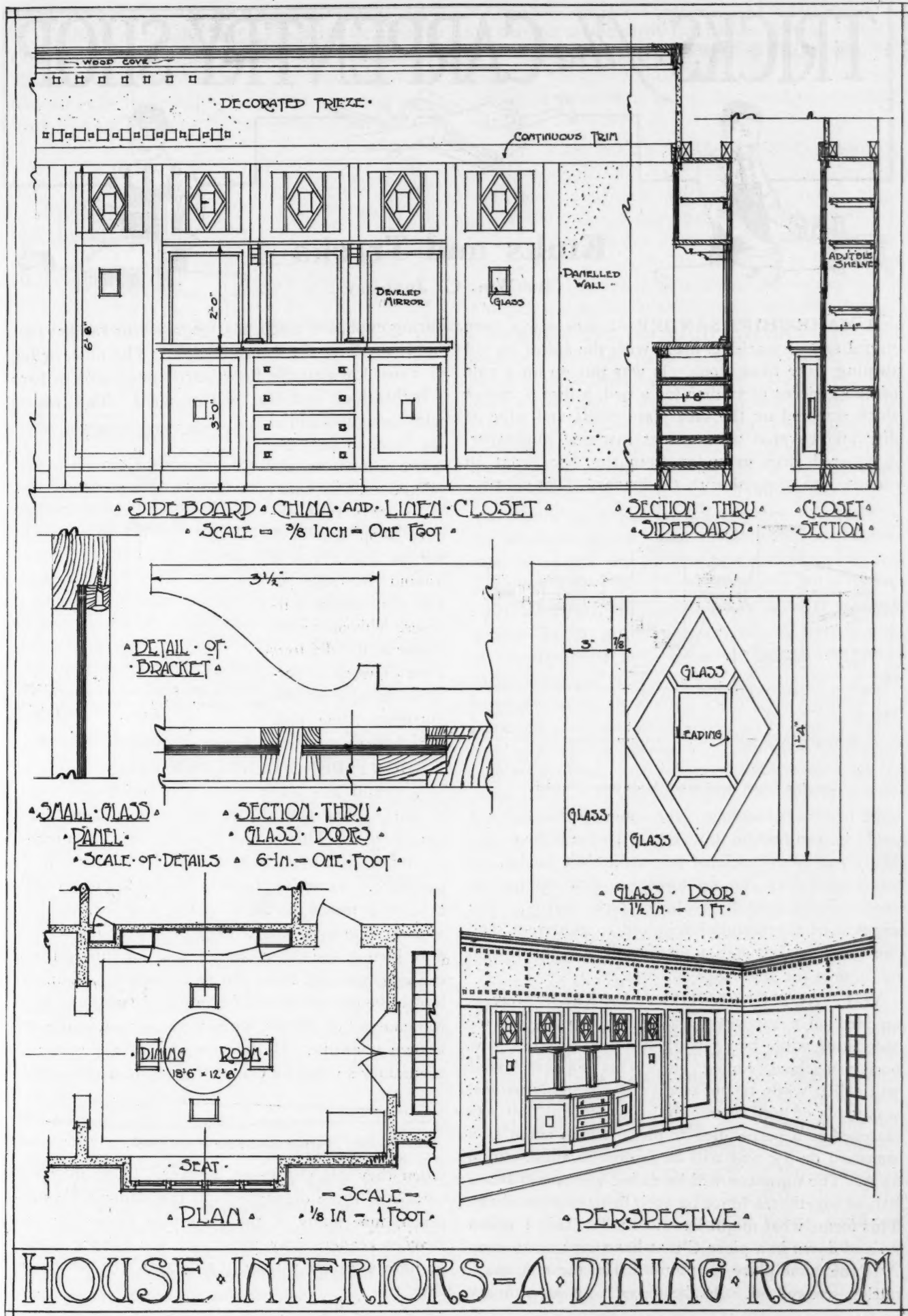
The perspective view shows the unique buffet that is built into the wall of the room. On each side of it are linen closets 6 feet by 8 feet high. The front face of the buffet contains drawers for silver, napkins, etc. The large drawing at the top of the page shows the front view of the sideboard more in detail. Above the buffet top are three beveled plate mirrors separated by columns.

Extending across above the mirrors are three small cupboards fitted in an artistic way with leaded glass doors. Above the cupboards is a strip of continuous trim going around the room, and above this is a decorated frieze.

The door to the kitchen is on the right of the sideboard. In the end of the room are double doors that lead to a porch, and across from them is a wide cased opening leading to the living room.

A round table fits in well with the general arrangement of this room and one is shown in the center with four chairs grouped around it.

The general plan in the lower left-hand corner of the sheet shows all the parts as they are grouped together to make a handsome and attractive dining room.



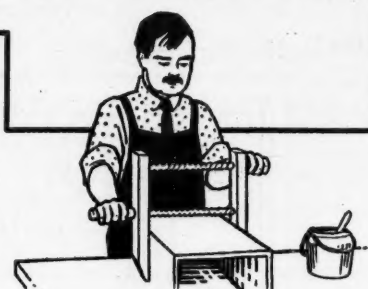
SKETCH, PLAN, AND DETAILS OF STYLISH, WELL-PLANNED DINING ROOM.

TRICKS *of the* CARPENTRY SHOP

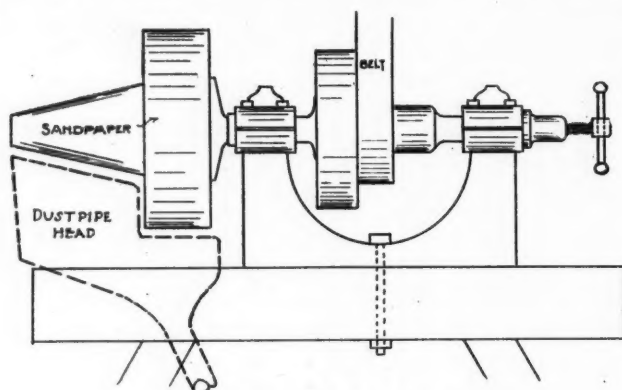


Kinks and Tricks

By Wm. C. Jasbury



A MAKE-SHIFT SANDER—I once saw a very useful sander machine, made with the aid of an old turning lathe head stock. It was put up on a pair of short pieces of timber for a bed, a disc 4 inches thick screwed on the face plate, front and edge of disc and covered with garnet machine sandpaper. A tapered shaft extended from the disc about 10 inches, also covered with sandpaper. This contriv-

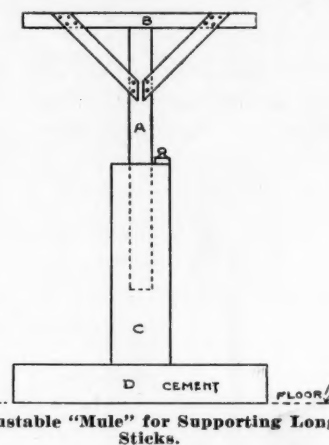


Turning Lathe Head Stock Made Into a Sander.

ance had an advantage over some machines, as it could be run fast or slow, owing to the lathe cones. Many uses were made of this make-shift sander. A wood pipe was run up under it, that carried off much of the dust to a blower pipe nearby. The expense of the material required to construct, and the cost of labor was a mere trifle compared with its value in the sanding of odd articles.

WHY NOT CALL HIM A HORSE?—Here is an idea on a support used to hold up the end of long stuff while being worked on a cross cut saw, boring machine, router, etc. This support (as I will call it while trying to give it a suitable name), was made of hard wood; the cross piece of top was fastened to a perpendicular piece, which acted as a standard or leg and will be known in this sermon as A. The top piece will be called B. A and B are halved together, a brace on each to strengthen them. This forms what might be called a T. This T slides up and down in a piece C that has strips on to keep A in the same place, or plumb. The piece A has a ratchet screwed on. On the top of C, is an ordinary

spring cupboard catch, that engages the ratchet that holds the T at the desired height. The post, or leg C, runs down to the floor, surrounded with a base 3 inches high and filled with cement. The cement adds enough weight to the base, to keep the entire outfit from toppling over, also makes it so heavy the ordinary shop man will not be carting it around the shop to use for sundry purposes. This may seem to you as it did to me, a lot of work to perform on such an unimportant shop tool, but that is not what I am at present discussing.



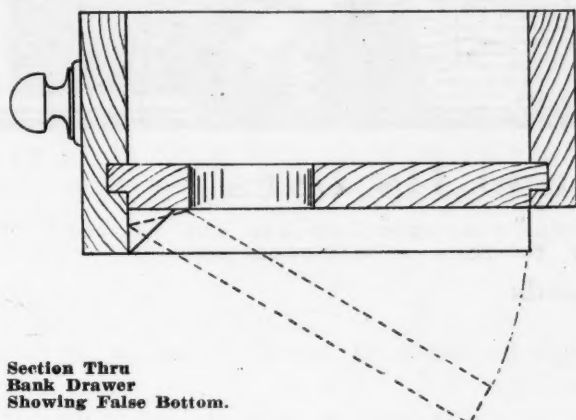
SHORT PENCIL HOLDER—There seems to be a fad of late years among lead pencil users, particularly office help, of having a short pencil in a long holder. This, I had thought, was economy—no doubt, in a small measure (say a circus pint of peanuts). True, but here is a mutt bobs up with a 1/2-inch maple dowel 7 inches long, whittled to a point one end, and a hole lead pencil size, say 5/16 inch in the other, with a hole cut through into the end hole, up from the end about 1 1/2 inch. It looks like one of the old-fashioned whistles we used to make out of willow, when work to us was the unknown quantity. He has the slot or slide hole in the holder so that he can push out the pencil points



Turned Holder for Pencil Stubs.

when they get stuck—so he says. There may not be any of these digdaglums at the Panama Exposition, hence many of the American Carpenter and Builder readers may never get the chance again, so here goes for a map of this man's "Disconvention."

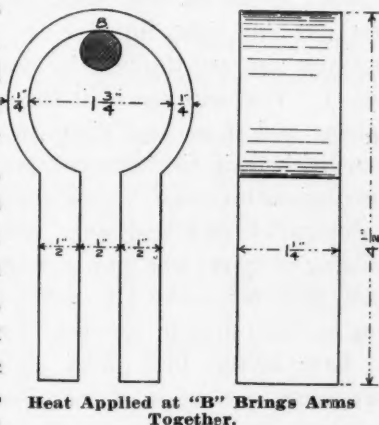
WOODEN TRICK BANK—Some years ago I had to make six wooden savings banks to be given as Christmas presents as per sample brought to the shop. The size was a $4\frac{1}{4}$ -inch cube, of basswood so that they could be decorated by some one who understood pyrography. A drawer in the front pulled out and



Section Thru Bank Drawer Showing False Bottom.

had a double bottom the top layer of which had a hole bored through it large enough to take a quarter and was hinged near the front with a small brad driven in each side. When the drawer was pulled out, to look in the drawer, all you would see was a circle apparently bored half way through the bottom. Place a quarter or smaller coin in the hole, push the drawer in and the bottom would drop with a pitch; the coin would slide into the bank, pull the drawer out again and the bottom would rub against the inside edge of the front and flop up again against the stationary bottom.

A PATTERN MAKER'S TRICK—While treating (a word used much while one foot on the floor, the other on a brass rail), on wood working, permit me to say a word about pattern making. I recently saw a man making a pattern for an auto concern, of white pine wood (as usual). The space between the two arms AA was to be $\frac{1}{2}$ inch. When he band sawed the pattern out of a $\frac{1}{4}$ -inch board, they sprung apart $\frac{5}{8}$ inch, making them $\frac{1}{8}$ inch too far apart. He put a warm piece of iron in the loop at B, which heated loop at point B, causing the wood at that point to shrink, which caused it to contract, bringing arms AA closer together or $\frac{1}{2}$ inch, which held its shape until after casting. I never would have thought this out. No doubt other mechanics feel the same; some men are so tricky, you know. But this little thing entitled him to his clearance papers, from my observation.

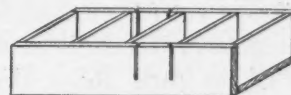


WILL STAND WITHOUT HITCHING—Since the coming of the auto, the turning of an ordinary tie post, has nearly become a thing of the past. It looks as though whip sockets and tie posts, as articles of wood turning will be found in museums only, in a few years.

HOW FAR HAVE YOU SAWED?—Counting on a carpenter who has worked 40 years at the trade, using a 24-inch saw, cutting off on an average of 100 pieces a day, mathematicians might say he has pushed his saw in that time a distance equal to that from Chicago to Denver, more or less. Figure it out for yourself, as mathematicians like men's watches, are never the same and everybody right.

THERE AIN'T NO SUCH ANIMAL—Now and then you will see pictured in a magazine, newspaper or on a breakfast food box, a carpenter wearing a square hat. I will stake my stock in the Bean Foundry in Boston, to a Civil War Derby hat, that there never was such an animal. Why, if a carpenter appeared on the job with one of those critters on his cupola, the masons and plumbers would give him a linen shower of Irish projectiles. The offending head canopy may have originated up in Minnesota, but I will say again, I've the first one to see. Although I have been in Missouri, am not a native.

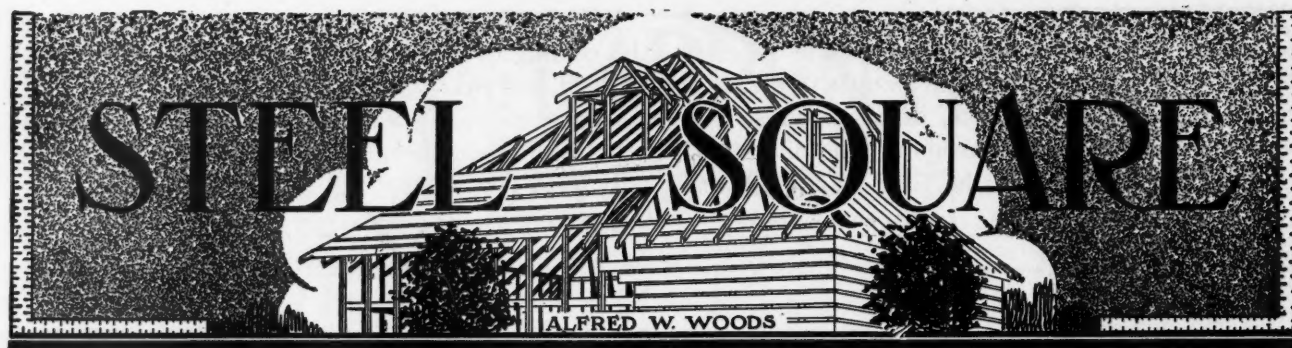
DOUBTFUL USE FOR OLD WOOD MITER BOX—Having gotten over my case of itching feet, or traveleritis, I will misuse a few more pages of white birch and spruce wood ground up in Maine. I saw today a piece of economy, or perhaps laziness.



These two words are seldom found running on the same ticket, but you can figure the answer out for yourself. After an ordinary bench (wood) miter box is in a pension state, or beyond serving purposes No. 1, it is usually thrown in the scrap pile, or over in a corner behind some junk. This one was transformed into a nail box by putting on two ends and three partitions. This fellow was kidded some about the heft (a word used by section men of yore) of the thing, but said "it is good material, or at least was once."

ORIGIN OF NAIL SIZES—Speaking about nails, I know a carpenter who contends that the penny of a nail, as 4d., 6d., 8d., etc., is the number of cracks he gives them, driving in, as 6d. nail, 6 cracks; 8d nail, 8 cracks, etc. Some of the men in his gang say he is both cracked and penniless.

SHELLAC FOR COLUMN GLUE—I know of a house that has staved up colonial columns that were fastened in the joints with brown shellac instead of glue, put on carefully, chained up, turned and then joints nailed. These columns are of Louisiana cypress. The chances are they will last.



The Steel Square and Its Uses

ILLUSTRATING ROOF FRAMING BY MEANS OF SMALL BLOCKS CUT FROM THE TOE END OF THE COMMON RAFTERS AND PLACED TOGETHER TO FORM A MINIATURE ROOF

By A. W. Woods

WE are going to take for our subject this month the most common thing in roof framing.

Something that every carpenter is presumed to be perfectly familiar with, as well as a good many others that are not carpenters; and that is, the parts to take on the steel square for the framing of the common rafter. It is so common, we will not attempt to explain it here. Yet how many know that by simply making one more, or rather, one additional cut, all of the proportional parts can be produced for the framing of a hip and valley roof for any angle the building may have? Of course, if there are different angles and pitches in the roof, it would require a different cut for each angle and pitch, but if the roof is regular, two cuts is all that is necessary to produce all of the parts above mentioned.

For illustration, we take the ordinary square-cornered building. We will not cite any particular pitch

because that does not matter; it can be anything desired.

Figure 1 shows the seat cut on the end of the common rafter, the dotted parts show the part that's cut away and is thrown into the scrap pile and eventually burned up—reduced to ashes and back to Mother Earth from whence it came; but true to nature, they had their part in forming other parts to do service a little while longer, just as we individuals are doing for others that are to follow us. Some are cut off rather short, while others are left to labor a while longer, but finally must give way and are remembered only for services rendered.

But let us get back to that second cut; and so in Fig. 2 we show the end of the rafters minus the part cut away; and on the fresh cut end we lay off a perfect square, as at A B C D. We then lay off a diagonal line, as A-C and then cut on this line, and at right angles to the seat cut, as shown at A B E; the result will be a three-cornered block, looking at it from any of its four faces.

Now, let us set this block on its original base, of first cut and just imagine it to be transparent—that you can see through it—and it will show as in Fig. 3. You will see in it the parts of the roof, as shown; and if we had eight such blocks and placed them with their rise together, we would have a complete miniature roof, as shown in Fig. 4.

But hark! We hear some one say: "Suppose the building is longer one way than the other, then what?" That does not make any difference; it might be as long as from here to Jericho (that is some length) as we have in this little block all the proportions that are necessary, but in order to make our illustration complete, we will make a cut square across, as from A to D and this will make a block, as shown in Fig. 5. Cut two of such blocks, and by opening up Fig. 4 and slipping these blocks in between, we would have a figure, as shown in Fig. 6.

Thus we trust we have made the subject thus far clear, but some may wonder how to apply this in prac-

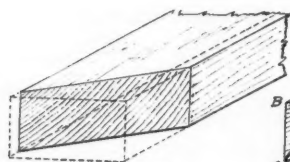


FIG. 1.

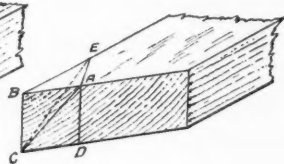


FIG. 2.



FIG. 3.

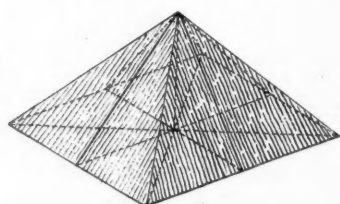


FIG. 4.

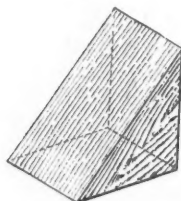


FIG. 5.

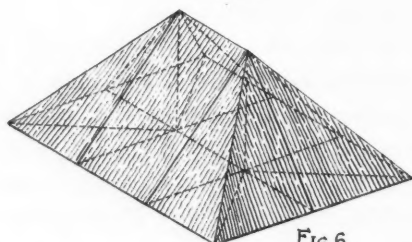
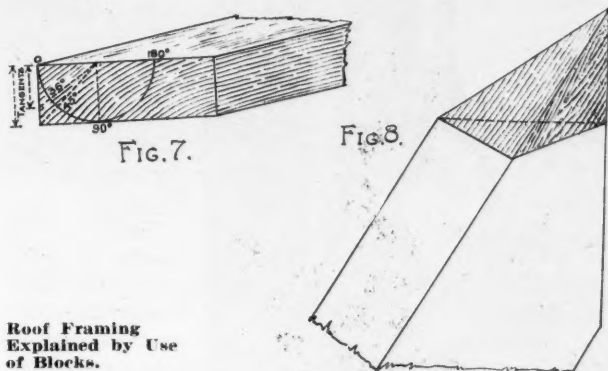


FIG. 6.

Roof Framing Explained by Use of Blocks.

tice to a full size roof. Well, just suppose the side of the block marked "Run of common rafter" (see Fig. 3) to be 12 inches long and the side marked "Rise" may be any length, according to the amount of pitch desired. NOTE, the side marked "Tangent" would be the same length as that of the run, but that should not worry any one, as it does not occur in any other than for the same square corner. This is where a great many get rattled and go wrong simply because they do not understand the governing parts involved in roof framing and that is why the great majority never get any further in the use of the steel square in roof framing than for the ordinary square-cornered building.



Roof Framing Explained by Use of Blocks.

Here is the secret of the whole business and that is founded on circular measurement, as shown in Fig. 7, and may be reckoned on the semi-circle, as shown.

Remember, in laying out the plan from which to obtain the proportions to use on the steel square, it is necessary to use only one-half of one of the sides of the building, which it represents; and that is the reason one-half of the circle is used for calculating purposes. Thus, for the four-sided building, $180 \div 4 = 45$, which represents the angle in degrees that the run of the hip rests from that of the common rafter. This explains the why of the diagonal line from A to C, as shown, back in Fig. 2.

In case of a five-sided building, it would be $180 \div 5 = 36$, and represents the angle in degrees on which

to make the cut. The procedure otherwise would be as above described for the square corner, so far the illustrations are shown in connection with the foot of the rafter; but in order to play fair with the upper end, we will reverse the thing and give one more illustration.

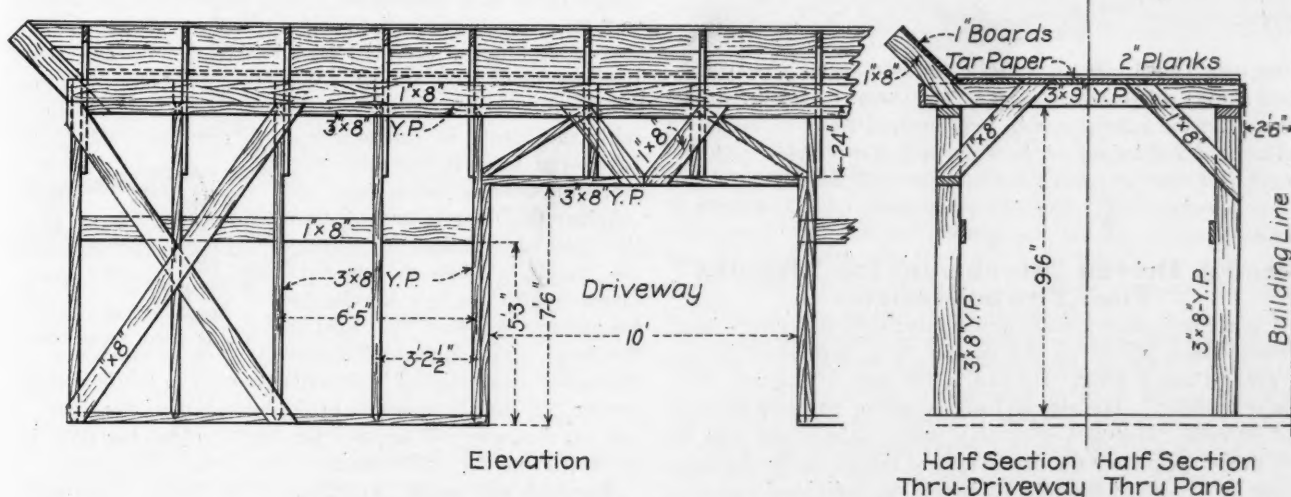
Suppose by some means, we have obtained the correct side cut for the jack and on the peak end we make another cut the same as required for the seat cut, as shown in Fig. 8, and we will have a block identical with that shown in Fig. 3.

With this we close, but we wish it distinctly understood that this article is meant more especially for the young carpenters and the boys in the manual training schools, to illustrate the fundamental parts involved in roof framing. In doing so, we are fully aware of the laugh that will go up from some of the old sawyers of wood at the kindergarten way we have put it, but we are willing to leave it to the boys themselves as to whether the subject of roof framing has ever been brought home to them in a more clear, concise way than here presented.



Safe Sidewalk-Protection Platforms

The Bureau of Highways of Philadelphia, Pa., under Wm. H. Connell, Chief of Bureau, has adopted a standard sidewalk-protection platform of the design shown in the accompanying illustration to which all building contractors must conform. This platform is designed for a pavement 13 feet in width or under; to carry a live-load of 200 pounds per square foot. If the load is larger than this, the cross-section of posts and joists or their number are doubled. For fastening the 1-inch boards 10d. nails are specified; for 2-inch planks, 20d., and for 3-inch, 40d. All posts are 3 by 8-inch timber, toenailed top and bottom. The joists for platforms must be, 13 to 14 feet, 3 by 10's; 14 to 16 feet, 3 by 12's; 16 to 20 feet, two 3 by 12's; 20 to 22 feet, three 3 by 12's. An unusual feature in the design is the double floor and waterproofing layer of tar paper.



Standard Sidewalk-Protection Platforms as Adopted by Philadelphia Officials.

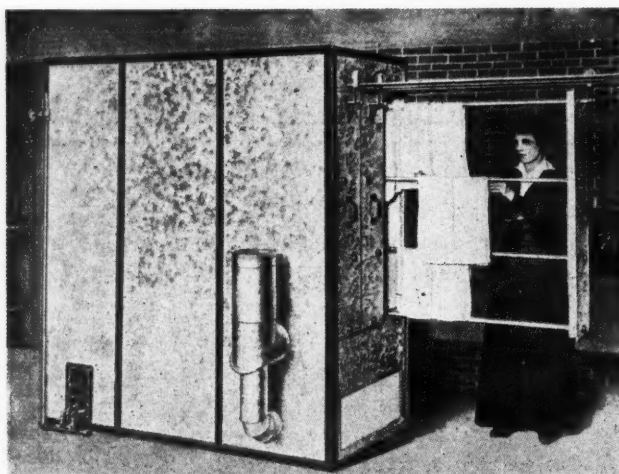


High Grade Clothes Drier

The accompanying illustration shows a compact and well arranged clothes drier that has recently been placed on the market. It is heated with gas and the heating and drying chambers are kept separate so that the gas fumes cannot escape into the drying compartment and discolor the clothes.

The heating part is in a drum that forms the lower part of the drier. The gas enters through three tubes and the burners are in the back part. The air enters at the bottom of the drying chamber through wire screens at both the front and the back. As the air is warmed and dried, it rises to the top through the clothes. Here it absorbs moisture so that it becomes heavy and drops to the bottom of the drier where it is drawn out through a pipe. The draft necessary to carry this heavy air out is maintained by running a tapering pipe into the moist air pipe. The tapering pipe carries the gas fumes which by their heat cause a draft drawing the moist air out.

The good results obtained by this drier depend on the

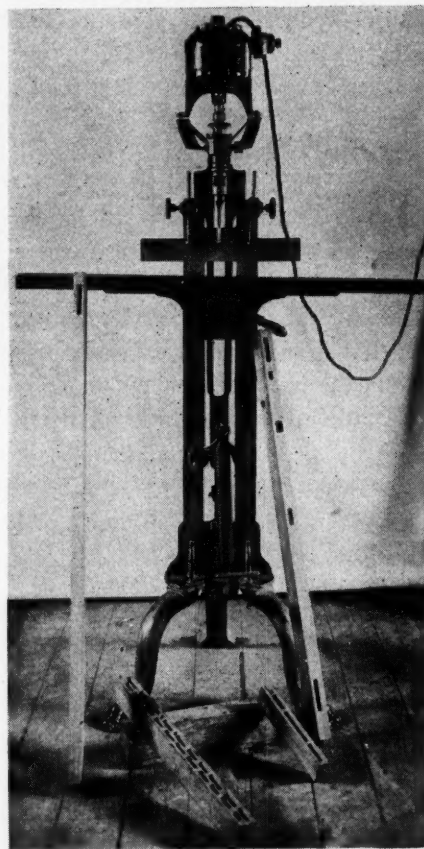


Three-Back Laundry Drier, 5 Feet 6 Inches High by 7 Feet Long. development of extreme heat. They say that the air is changed at the rate of one to two hundred times an hour.

The standard height of the drier is 5 feet 6 inches and the length is 7 feet over all. Each rack is 10 inches wide and 5 feet 6 inches long. The driers are made with 3, 4, 5, or 6 racks.

Electric Driven Attachment for "Barnes" Foot Power Mortiser

A portable hollow chisel electric mortiser has recently been perfected and placed on the market by a Wisconsin jobber in general wood work. He had in his shop a "Barnes" foot power mortiser. He also did an extensive business in sash and screens. His first idea of a power attachment was to belt to the floor from the line shaft and thence to the machine. Later he conceived the idea of having an individual motor—and this is the way he finally worked it out. A quarter



¼-H. P. Motor Drives Mortising Chisel.

in place and the ideal was realized.

All woodworking men are familiar with the Barnes' machine. This improvement covers only the hollow chisel mortiser attachment. The machine is giving such excellent satisfaction that he has decided to put it on the market. With this in view, he made arrangements with the Barnes Company to furnish the frames so that the machine complete with this improvement can be assembled and shipped together. Arrangements can also be made by those who already have a "Barnes" foot power machine to obtain this wonderful electric power attachment.



W. L. MATHEWS.

Simple and Effective Barn Door Latch

The feature of this lock is that it is double acting, for when the door is swung open it is locked open and when it is shut the same lock holds it shut. The latch consists of an "L" shaped bar held in a frame. In the frame there is a steel wire spring that holds the handle "A" down against the door, as it is in the illustration. A slot is cut in the door so that the point "C" can reach through to engage the wire clip that is fastened to the inside door frame. Another wire clip, such as is shown with the latch, is fastened to the outside wall of the barn so as to catch the point "B" when the door is swung open.

When the door is locked shut the latch is released by lifting the handle. When the door is fastened open, the lock is released by pushing the part "C" toward the hinge of the door. This can be readily accomplished by inserting a wire in the hole in the section "C" and fastening it to the back part of the door. A pull on this wire will operate the catch so that the door can be shut from the inside after it has been locked open.

The lock will operate equally well on sliding or swinging doors.



Spurs Keep Saw from Slipping

All carpenters, no doubt, have trouble with their saws slipping to the floor when temporarily not in use, and saw manufacturers at present absolutely ignore this tendency in the design of their saws.

The improvement shown in this illustration and recently patented, consists of spurs on the end of the blade to engage the floor and keep it from slipping and hold it in a standing position. It accomplishes results that can only be appreciated by an actual trial.



Newly Patented Saw Improvement.

accomplishes results that can only be appreciated by an actual trial.



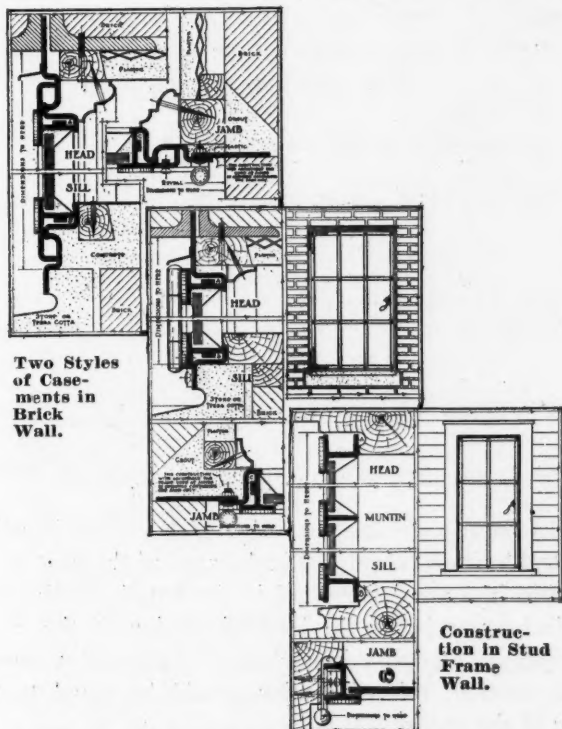
Metal Casement for Wood Frames

After considerable experimenting a metal casement has been evolved which can be used in conjunction with wood frames.

The combination of mechanical efficiency and improved appearance made possible will be a marked help to architects and builders when designing medium or low-priced houses.

The principal points of this new casement are permanency, ease of operation, minimum obstruction to light and 100 per cent ventilation. The rigidity of construction prevents rattling and the warping, twisting and binding common to wood casements.

During the prolonged and unprecedented rainy period which prevailed in the north central states during the past summer, when only the very best grades of wood casements



Details of Metal Sash Construction in Connection with Wood Frames.

and sash did not bind and stick, metal casements fully justified their use in all types of residences.

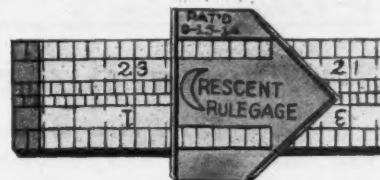
When the existence of this welcome addition to building materials becomes generally known we predict that architects and builders generally make use of it. Further particulars on request.



A Handy Little Rule Gauge

This little gauge is made to fit on an ordinary 2-foot carpenter's boxwood scale. It is all in one piece and is stamped from spring sheet steel and nicked. The size is 1 5/8 inches long and 1 3/4 inches wide and it fits on the rule as shown in the illustration. As it has no joints or springs it cannot weaken and lose its efficiency.

The gauge can be used in many ways. It is especially useful as a try square and for determining 45-degree miters. It is also very handy for general mitering and for both inside and outside gauging. The gauge can be slipped off the rule when it is not needed and it has no sharp or projecting parts to wear holes in the pocket.



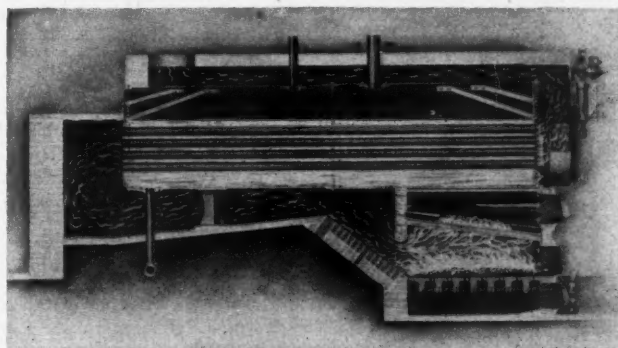
Gauge Slipped Onto 2-Ft. Rule Earns Its Way.



A Smokeless Downdraft Boiler

The boiler shown in the accompanying illustration is said to operate so that complete combustion of the gases is secured, which of course gives very high heating ability and cuts the waste from smoke to almost nothing.

It is called the downdraft detachable fire box boiler.



Section Thru "Smokeless" Boiler, Showing Coking Grate.

The operation of the downdraft system to insure complete combustion of the coal is as follows:

Air is admitted above the burning fuel bed, supported on a grating composed of a series of water tubes. The natural stack draft forces it down through the strata of fuel. The air then mixes with the released carbons and the combined gases are expelled through a coking bed of coals over an incandescent fire. This lower fire is supported on a cast iron shaking grate and is replenished by the live coked coals that have fallen between the water tubes of the upper grate. Thus a most complete ignition of the gases is accomplished.

The heated gases are intensified by passing over a brick firewall immediately back of the rear water leg. Plenty of room for expansion is provided in the large combustion chamber back of the firewall. Heat is then further applied to the water in the fire tubes through the boiler and then back across the top of the boiler to the chimney. The passage of the heated gases is shown clearly in the illustration.



Noon Hour Talks by the Boss Carpenter

Talk No. 39. Supporting Posts—Construction Series No. 3

THE BOSS TELLS HOW TO FIND THE SIZE OF SUPPORTS UNDER MAIN GIRDER IN FLOOR CONSTRUCTION

"YOU will remember," said the Boss, "that in our last talk we said that we would find the size of the timber posts or brick piers which would be needed to hold up the main girders shown in Fig. 60. These girders are the same ones which are shown in Fig. 57 of the previous talk and carry the loads given in the latter part of that talk. These girders are taken as 24 feet long, with the ends sup-

ported by the foundation walls and with two intermediate posts or supports located at 8 feet from each end. find the load carried by each length of girder on both sides of a support and then add together one-half of each of these two quantities. The method for finding these weights is carefully explained on page 74 of Talk No. 38.

"We will first consider that we are to use yellow pine posts for these supports, and that a basement 7 feet deep in the clear is desired. This will make the distance from the floor to the bottom of the main girder 7 feet. We will use a post of square cross-section, since this shape of section is best for compression pieces.

"The following formulas are often used by builders in finding the size of a timber post to carry a certain central load, or to find the central load that a timber post of a given size will carry with a given degree of safety:

"For Georgia yellow pine posts

$$\frac{W}{A} = 4,000 - \left(\frac{8}{10} \times \frac{l}{d} \times \frac{l}{d} \right)$$

"For short-leaf yellow pine posts

$$\frac{W}{A} = 3,300 - \left(\frac{7}{10} \times \frac{l}{d} \times \frac{l}{d} \right)$$

"For white oak posts

$$\frac{W}{A} = 3,500 - \left(\frac{8}{10} \times \frac{l}{d} \times \frac{l}{d} \right)$$

"For white pine and spruce posts

$$\frac{W}{A} = 2,500 - \left(\frac{6}{10} \times \frac{l}{d} \times \frac{l}{d} \right)$$

"In these formulas, the value of W is the *breaking* central load, in pounds; A is the area of the post cross-section in square inches; l is the length of the post in inches; and d is the least dimension of the cross-section of the post in inches. In case of a square cross-section, this dimension would be equal to the side of the square.

"Where a factor of safety is to be used, as is

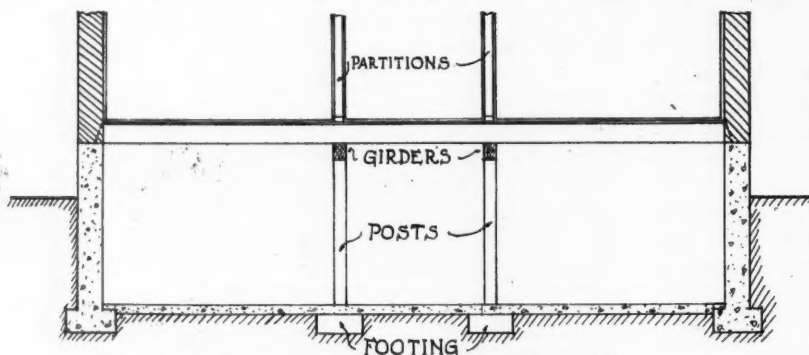


Fig. 60. Arrangement of Girders and Posts in Building.

ported by the foundation walls and with two intermediate posts or supports located at 8 feet from each end.

"No matter what kind of material these posts are made from, the load to be carried by each supporting post will be the same. We will find this load by referring to Fig. 61 and to the material given in Talk No. 38.

"Each post, or support, will carry a weight from the floor above such as shown by the shaded part of Fig. 61, in addition to a part of the weight from the partition located just over the girder. This partition brings the weight from the upper floors down to the girder. In this case, as shown in Fig. 57 of Talk No. 38, each support will carry a central load equal to that carried by a length of girder 4 feet on each side of the support. This will correspond to the load figured for the girder in Talk No. 38, or will be 12,720 pounds. If the posts are not spaced equally along the length of the girder, it will be necessary to

always the case in good design, both parts of the right-hand side of the formula should be divided by the factor desired; or solve the equation as it is and then divide the value of W which is found by the factor. Where the load is given and we are to solve for the size d , multiply the given load by the factor of safety desired, place this value in the formula as W and

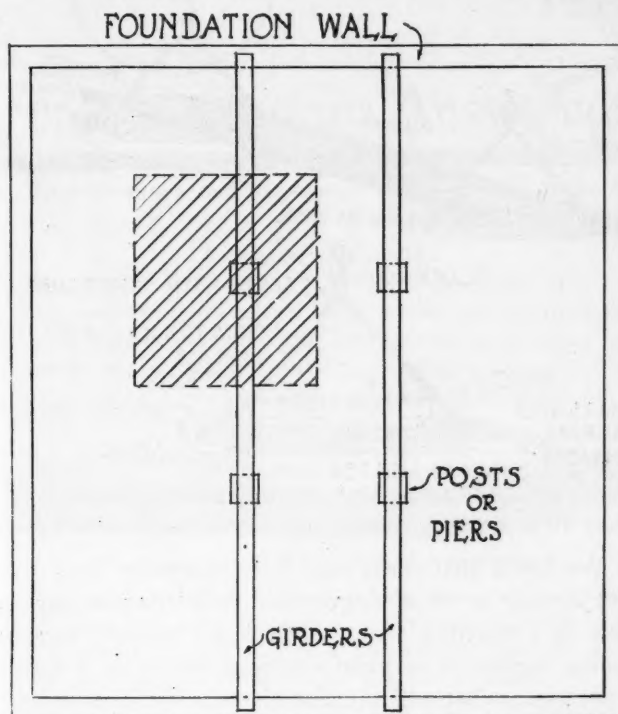


Fig. 61. Diagram of Floor Load Supported by One Post.

solve for d . The area A will be expressed in terms of d . For instance, the area of a square section post would be $d \times d$; that of a rectangular section would be the breadth in inches $\times d$; while that of a circular section would be

$$\frac{11}{14} \times d \times d.$$

"We will use the formula for short-leaf yellow pine, and ask for a factor of safety of 6 in. in post. Filling in

$$\frac{W}{A} = 3,300 - \left(\frac{7}{10} \times \frac{l}{d} \times \frac{l}{d} \right)$$

we have for our problem if a square cross-section post is used

$$\frac{6 \times 12,720}{d \times d} = 3,300 - \left(\frac{7}{10} \times \frac{7 \times 12}{d} \times \frac{7 \times 12}{d} \right)$$

"Multiplying both sides of this equation by $d \times d$ and cancelling, we would have

$$6 \times 12,720 = 3,300 \times d \times d - \left(\frac{7}{10} \times 84 \times 84 \right)$$

$$76,320 = 3,300 \times d \times d - 4,939.$$

Carrying the 4,939 to the other side of the equation, changing its sign and adding, we have

$$81,259 = 3,300 \times d \times d.$$

This gives $d \times d$ as about 25. We see that for a

value of $d = 5$ inches, $d \times d$ would be equal to 25 as above. This would mean that the nearest commercial size of post to use would be a 6-inch by 6-inch post.

"The ends of this post should be squared off very carefully so as to give a good flat bearing surface at the top and bottom with the load distributed evenly over these top and bottom surfaces. Care should be taken to see that the end surfaces are exactly perpendicular to the sides of the post so that the post will not bear on one edge when set in place and loaded. A load which is applied to the post in such a way that the line of the load does not act down the center of the post will produce unequal stresses on the cross-section of the post and tend to buckle the post.

"The post may rest on a concrete footing at the bottom. This footing is often made from 18 to 24 inches square and 10 to 12 inches thick, the size depending upon the load to be carried and the kind of soil that the footing rests in. The girder may rest directly upon the top of the post for light loads, or may rest upon an iron or steel plate, or hardwood bolster placed on the top of the post. Fig. 62 shows one type of construction where a bolster is used.

"If a brick pier is to be used, the condition will be similar to that shown in Fig. 63. Brickwork piers or stonework will vary in strength according to the quality of the material used, the care with which the work is done, and the kind of mortar used. A pier laid up in Portland cement mortar is stronger than one built with ordinary lime mortar and will stand dampness to a better advantage. The height of a

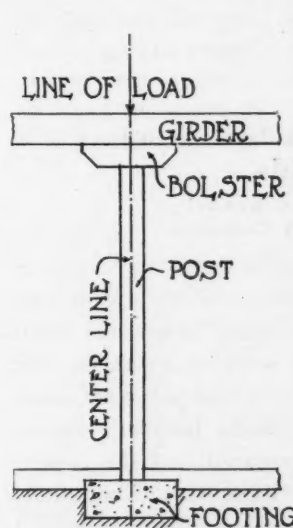


Fig. 62. Timber Post with Bolster Used as Support for Main Girder.

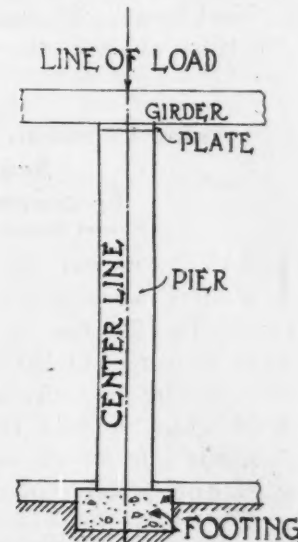


Fig. 63. Brick Pier Used to Support Load from Girder.

masonry or brickwork pier should not be greater than six or eight times its least dimension in order that a purely compressive condition may exist on all cross-section of the pier. Likewise, the load which the pier is to carry should be placed so that the line of application of the load will act down through the center of the pier as in the case of the post just described.

"The formula to be used in finding the size of a brick or masonry pier to carry a given central load, or to find the central load which may be carried by a brick or masonry pier of a given size is as follows:

$$W = CA$$

where W is the central load in pounds, C is the working unit crushing strength of the material in pounds per square inch of cross-section, and A is the area of the cross-section of the pier in square inches.

"The value of C will vary with the material used. The value of C for brickwork is 110 pounds per square inch when a lime mortar is used, and 200 pounds per square inch when a Portland cement mortar is used. These values may be used direct in the formula and already contain a liberal factor of safety.

"If rubble stonework is used, a safe value for C is about 75 pounds per square inch where lime mortar is used, and 140 pounds per square inch with Portland cement mortar.

"In our problem, if we use a brickwork pier 7 feet high laid up in Portland cement mortar, we would use the formula $W = CA$ with W equal to 12,720 pounds, and $C = 200$ pounds per square inch.

"Filling in these values, we have

$$12,720 = 200 \times A$$

or, $A = 64$ approximately. This value of the area in square inches could be made up by 8 inches \times 8 inches, but the common rule given above for relation between the height of the pier and the value of the side dimension would make us use a 12-inch by 12-inch pier.

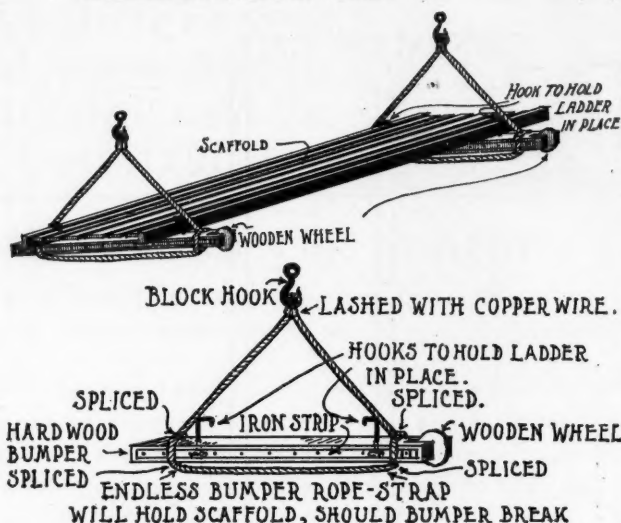
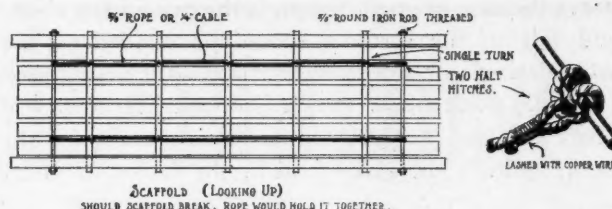
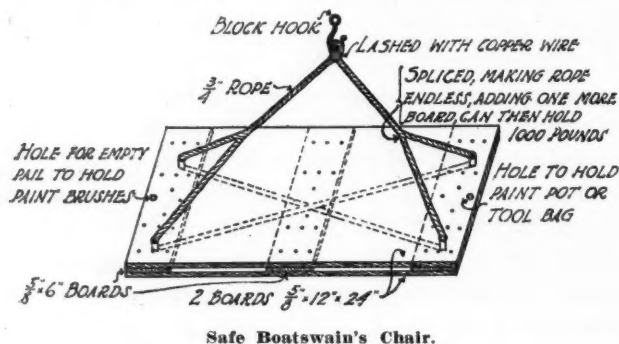
"Next time," said the Boss, "we will consider the calculation of some other part of our building."



Safer Construction for Swinging Scaffolds

By Edmond Von Kaenel
Expert Steeple Jack Contractor

I HAVE witnessed the terrible death of Clyde S. Walters, when he fell from a smokestack at Oak Forest, Ill. Because of this man's death my brain began to work and has been working overtime ever since, making the entire block and tackle system, boat-swain chair, scaffold and scaffold bumpers system absolutely safe for the inexperienced and the experienced daily laborers of these hazardous occupations.



Three Views of Ladder Scaffold Having Extra Provisions for Safety.

We know that these men who risk their lives give but a snap of their fingers for their lives as far as risk is concerned. But when heart failure, sudden cramp, weakness or blind staggers sets in on a man's daily task, what will prevent his death if he is lowering himself on a scaffold or boat-swain or dangling in the air by a block and tackle system? NOTHING but a practical, well-tested safety appliance or method of some kind that will stop the control rope automatically.

You will note in the sketches the practical reinforcements of an endless bumper strap and safe guard or life line underneath the scaffold; two or three of these may be applied as you see fit. The new reinforced boat-swain chair, which is doubly strong and has stood the test, has also an endless strap.

To the workers of this occupation, I wish to emphasize my deepest sympathy for the death of Clyde S. Walters. Moreover, his death has given us the necessary points of at least feeling safe high up in the air. So with my years of experience with the block and tackle system I have wrought out an automatic system which will grip the control rope at any moment in case of distress to the toiler during his daily duties. One cannot depend for his life on his own uncertain physical conditions.

This is the strong point I wish to express and I think some of you men will agree with me. Make these changes, to do so the cost cannot be considered when life at such value is at stake. In connection with daily routine of work I have taken up this heart-satisfying desire of saving human life and I wish that all readers of this publication will use their few idle moments of spare time in doing the same.

CORRESPONDENCE



Questions Answered and Ideas Exchanged.

Our Readers Are Requested and Urged to Make Free Use of These Columns for the Discussion of All Questions of Interest to Carpenters and Builders.

A Natural Graft

To the Editor:

Missoula, Mont.

The accompanying photo is of a piece of wood found in a fuel pile, and shows a limb which, after growing alongside the main tree trunk for about two feet, joined it again, making a perfect graft. The tree seems to have



Tree Branch Attached to Trunk in Two Places.

been severely scraped along the side, some six or eight years before it was cut, and this accident probably had to do with the graft. It is a phenomenon rarely seen, but goes to prove that a natural graft is possible.

W. D. GRAVES.



His Blueprints Don't Come Out Uniform in Color

To the Editor:

Cullman, Ala.

I would like a little information about blueprints. Should all the drawings of a set be blueprinted together at one time, or separately one at a time? I am just a beginner, and my trouble is that I don't get them all the same color. Some are light and some are dark. I would be very thankful if you will let me know where the trouble lies.

A. L. B.

Answer—Architectural drawings are usually printed one at a time, because of the huge size blueprinting frame one would have to have in order to expose an entire set at one time. The ordinary size frame will hold one or two sheets. If you will be careful to time each exposure, and allow exactly the same time on each sheet, you should have no trouble in getting them uniform.

The length of exposure to use will depend on the brightness of the day; half a minute in direct sunlight may be enough, whereas along late in the afternoon out of the sun, a ten-minute exposure may be required. It's a good plan to put in a try piece first and experiment with it until you have found just the right length exposure to make a dark blue, sharp white-lined print.

Over-printing brings out a bronze color before the print is washed that is unmistakable. Under-printing gives a light blue to green color. In an over-printed blueprint, the finer lines will be lost; if under-printed the background is not strong enough to show up the lines clearly.

One thing more, and it is the most important of all, keep your blueprinting paper in an absolutely dark place. Keep it rolled tightly and securely wrapped, and, if possible, in a tin tube with tight cover. There are tubes espe-

cially made for keeping blueprints in, and they do not cost much. When you get ready to make a blueprint, cut off what you need, and put the roll away at once. Don't wait a minute, nor half a minute, or you will find your whole supply light-struck and faded.

For washing, use plenty of clean cold water.

EDITOR.



Framing Purlins

To the Editor:

Winchester, Ohio.

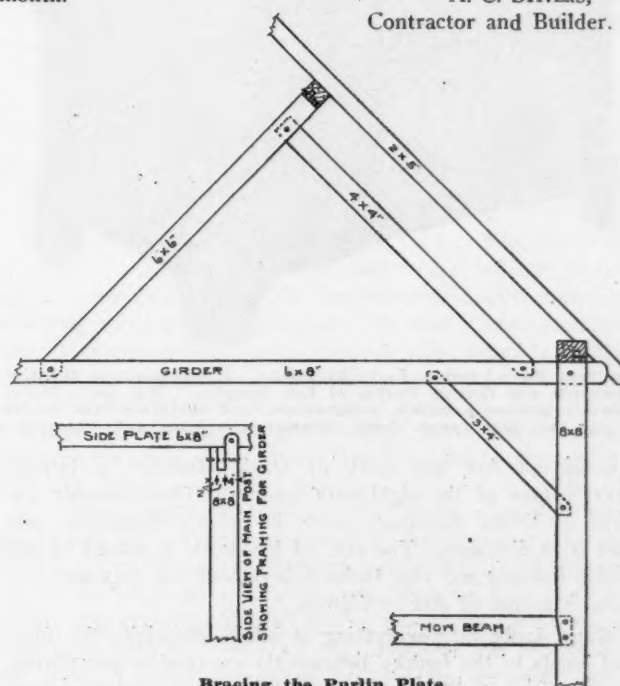
Am enclosing small sketch in reply to J. B. Sydeman, showing our method of framing purlins. Would say to him that we always cut a slip mortise in the side post right under the plate and drop the cross tie or girder in same, as shown in sketch, framing the girder with a logger head on end.

If he will frame them that way, he will never have trouble with his building giving way. He shows his brace 6 by 6 inches, which is unnecessary, as 4 by 4 inches is plenty heavy and much easier handled when raising. We use 3 by 4-inch for common braces, cut the mortises 6 inches long, saves throating the brace; pin them with 1-inch pins with not less than 1/8-inch draw.

I have been working at the carpenter trade for over twenty years and have built several barns in that time; but learn something from the AMERICAN CARPENTER AND BUILDER every month.

A. C. STIVERS,

Contractor and Builder.



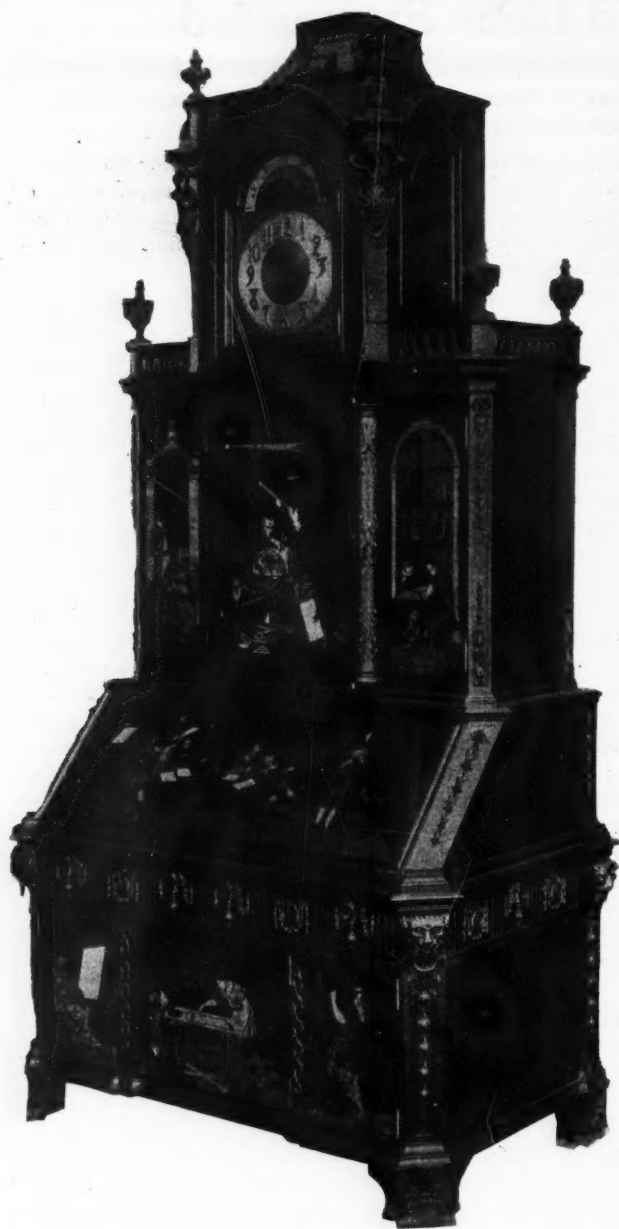
Bracing the Purlin Plate.

Inlaid Desk Valued at \$5,000

To the Editor:

Watts, Calif.

I am sending to you photograph of a desk (Louis XVI style), which my partner and I have recently finished after four years of work. I think it will arouse the interest of many of your readers. I am also enclosing clipping from the "Los Angeles Times," for the purpose of better understanding, as I would not be capable to express myself in the proper way, not yet having mastered the English language. I also wish to state that there has never before been a copy of this desk design; the original is in the Vienna National



It Took Four Years to Carve This Desk. It was made by William Konnerth and George Forke, of Los Angeles. The three lower panels represent painting, architecture, and sculpture; the center music, and the upper three, commerce, science and literature.

Museum of Art, the work of David Rontgen, a famous wood carver of the eighteenth century. There is only one piece of David Rontgen's work in private possession, and that is in England. The rest of his work is owned by the South Kensington, The Hohenzollern and the Austrian National Museum of Art at Vienna.

Many doubt that everything is inlaid, especially the faces and hands of the figures, because the expression and posture are so fascinatingly true. We wish to say, and are ready

to prove it any time that there is not one drop of stain, dye, or paint, and there is not even a dyed piece of wood; nothing but natural wood is used down to the smallest detail. If it had been a common piece of furniture, it would not have required twenty-one months actual time for two men, working twelve hours a day, four years to finish it. We felt sure, if it could have been exhibited at the San Francisco Fair it would have landed in a fine collection or museum.

We have studied this line of work so well in France, Italy and Switzerland, we doubt very much if there is a piece of work that could compare with ours in this country.

I am a reader of your magazine for three years, and like it very much. I also have your "Estimating and Contracting," and I think it is a great book.

KONNERTH & FORKE,

Manufacturers of Artistic Inlaid Work and Decorations on Furniture and Store Fixtures.

Editor's Note—The clipping from the local newspaper referred to above gives further interesting details of this extraordinary piece of handicraft—also the almost tragic story of its near-exhibition at the Big Fair:

"Faulty co-operation on the part of the officials of the Panama-Pacific Exposition at San Francisco has caused William Konnerth and George Forke, master artists in wood, to give up their plan for exhibiting one of the most beautifully inlaid writing desks ever seen in America, a copy of an old master that took them nearly four years to finish and the materials of which alone cost approximately \$1,000. The desk is valued at more than \$5,000.

"Ten years ago the two men met in Vienna. There Konnerth told Forke of a wonderful desk he had been studying in the National Museum of Art there. It was the work of David Rontgen, a famous wood carver of the eighteenth century, whose works are greatly treasured by collectors and museums. This desk they studied on and off for six years, and then when they arrived here the opportunity came to copy it.

The desk stands nine feet four inches in height, is four feet six inches in width and thirty-three inches in depth at the base and the body is practically solid mahogany. In order to describe it, it might be well to suggest that it rises in four tiers the three lower ones panelled with inlay work the like of which is little known in this country.

"The three lower panels depict painting, architecture and sculpture. The artist sits before his easel with the first outlines of a bust faintly apparent on the canvas, which is in the desk, a piece of ivory. The architect, sketching his floor plan incidentally also watches the antics of his apprentice in the center panel, and the one on the right depicts Michaelangelo hewing out the figure of a beautiful woman.

"Music occupies the central portion of the desk, being the drop leaf. An early orchestra rehearsing is shown. Three violinists and a cellist are grouped at the table, while standing just in back of them is probably the wife of one of the players and over on the right the flute player is having difficulties in assembling his instrument. The music scores are in ivory. There is red wine on the table, covered with a dark red cloth. The floor is of brownish green shading.

"The upper three panels depict commerce, science and literature. Commerce is of oriental character, showing the merchant inscribing into his ledger the sale of a bale of spices. The transaction is staged in a doorway which looks out upon palms, one of these strongly outlined in natural color.

"In the middle is the panel of science. The astronomer with his crude telescope is observing the flight of a comet, done in mother of pearl, across the horizon. The geographer with his calipers is measuring distances on the globe, while the mathematician is solving abstruse problems with the aid

of his tablet, square and other instruments.

"The final panel depicts the library of the eighteenth or earlier century, with its ponderous leather and parchment volumes. One of the readers is engrossed in a work on geography, while another studies philosophy.

"The fourth tier contains the clock, a facial reproduction at least of an ancient timepiece, but differing in that it is a spring clock and not worked with weights, as was the one in the original Rontgen desk. The figures on the supporting column are perfect in their detail. The top of the desk is left for any desirable piece of statuary that may be decided proper to hold so exalted a place.

"The interior of the desk is as elaborate as the exterior. Every drawer and cabinet is finished with the same care as the exterior. The portion devoted to the writing desk proper is inlaid in various colors and designs. Behind the panel of science is located an apparently large cupboard with a background depicting medicine. Two female figures the one apparently a patient in pain and the other a nurse bandaging a foot are shown. A secret spring throws this background out of the way, revealing a compact set of small drawers.

"No coloring but the natural woods is used in bringing out the striking figures. Every detail is perfect, even down to fingernails and facial expression. An oil painting could conceal no more readily the juncture of the figures with the background, so carefully have the minute pieces of wood been dovetailed and lastingly impressed. Even the ends of the desk are of inlay work, a checkerboard pattern of different shades of mahogany.

"Among the woods used to secure the many colors the following are a few of the most important: African and natural mahogany, coral wood, birch, three kinds of rosewood for the various red shades; macassa and ebony for the blacks; Italian and black walnut and boxwood for the browns; primavera, birdseye maple and white maple for the yellows and greens, and white oak and holly for the light whites."



More from Fast Shingler Pierce

To the Editor: Boise, Idaho.

You sure guessed right when you said "start something."

After quite a delay I have just looked over the May and June numbers of the "American Carpenter and Builder," and will try to answer the queries by Messrs. Grant, Morris and Hogg. I was really amused by Mr. H.'s letter, as I have heard of him before through some of my pals (carpenters), who happened to stray off onto the plains and landed in his corral. In fact, I have a picture of some of his work that proves that he "has to be showed." Therefore, his attitude was no surprise to me. Seems strange though, that he never heard of the fast men in his own neck of the woods. Wm. Towne put on a thousand in 48 min. in Boulder, Colo., about 15 yrs. ago, and had it printed on his card, and I suppose every wood butcher in N. E. Colo. knew him and his record.

He reminds me of a woodpecker I caught when I was a kid. I slipped up and caught her on the nest. I was scratched up a bit, but I brought her in and exhibited her to the neighbors.

As to lasting on his jobs. If I needed the work or the money I would last all right. I would nail as many or as big nails into his shingles as he wanted, regardless of consequences. I have worked for worse men than he is; in fact, just finished a job for a man who was right there, directing every move and delaying the work every minute, but I came out fine. He didn't even know that we would have got done several days sooner if he had gone visiting in the next state while we were at work. This was a carpenter job—day work.

We use about 2 lbs. 3d. fine nails per M here, which would be about 1500 nails, and they give satisfaction, and I think they would in Sterling, Colo. They did in Denver, Boulder, Ft. Collins, and all N. Colo., for years, and I don't see why they wouldn't in Sterling. The air is just as dry there, but may be hotter than in other places.

I put on a job in S. Idaho seven years ago with 2d. fine, which were 1 inch long and a little over 6/100 inch in diameter; and it still is good. It was no fault of mine; the boss furnished the nails. I expected to see them blown off, as the town is as windy as Sterling, Colo., but after an absence of six years, I was back in town and I made a bee line for that house to see how it looked. I will admit I was surprised to see as good a roof as any in town. I will tell you the secret. I nailed them high so that the little nails would have a chance to penetrate the sheathing. The contraction and expansion don't reach them to split the wood or work them loose, and very little dampness gets there to rust them. I don't think there was over a pound of nails to the thousand on this job. So Mr. H. is losing about 20 per cent on nails. He would be a good partner for Mr. Rule!

No, really, this is about half bunk. I believe in enough nails and wouldn't use 2d. unless ordered to by the man higher up; but there is more to driving the nail in the right place than some folks think. Get 'em in a "strategic position," as Mr. Wilson said of his trouser button.

A 3d. fine nail driven in the right place with sheathing narrow enough and spaced wide enough apart to give good ventilation to all the roof, will last indefinitely from Nebr. to Oregon; but put paper over tight sheathing and let the leaves bank up in the valleys and on porch roofs, then you need galvanized nails.

As for the speed of driving nails, will say that the actual driving is the smallest part of shingling. The driving of two nails in a shingle will not take up more than a second of time, at the rate any fast shingler works. Of course, I mean the actual driving of the nails. I believe many lathers in nailing ends, will drive nails at that rate while the supply in his mouth lasts. A speedy typist will write over seven letters per second on the typewriter, and they have to give time for one type to disappear, before striking the next. The time taken for shingling isn't all in the nailing by any means. More time is taken for all the other operations than the actual nailing. If it were not for the labor of walking back and forth across the roof, with the straight edge would be the fastest way to lay shingles.

Our method with gauge, stool, and spiked shoes eliminates most all the drudgery and is fast and produces a better job because everything is open, that is, you can see the joints above, below and all around you. Therefore, there is no danger of accidentally breaking joints over a crack.

As to not half nailing the shingles I told of laying in 48 minutes. I said before that the contractor and two of the school trustees interested in the building, didn't complain and they were there looking on. In fact, a man working with stool and spiked shoes, where his life depends on the shingles sticking to the roof when he stands or sits on one, wouldn't be very apt to leave many of them loose. I have heard of straight edge shingles, nailing two rows of shingles with one row of nails, but it would be impossible with the gauge.

Mr. Hogg, and all skeptical ones, must remember that we do not waste energy and shoe leather running all over the roof, but like a woodpecker, stay right in one place 'till we get all done we can do there, then we take one hop to the next station. Neither do we waste any time fooling with scaffolds; we bring all that stuff to the job under our arm. I have even adopted the style of seat I use.

because it is a little easier to move than some others. There is nothing to the lasting at high speed; that is only a question of whether you are thinking of your work, or of where you are going fishing next Sunday. Most anyone is physically able to put on 6 or 7 M in 8 hours. It is only a question of practice, and the ability to keep busy every second, that does it. I believe carpenters waste as much time as the proverbial plumber, and do it in a thousand little ways, that the plumbers never dreamed of. Therefore, they can't understand why the study of a few scientific movements and elimination of a host of unnecessary ones, together with industriously pecking away every second, will enable one to double their misguided best efforts.

For the benefit of Messrs. Grant, I will say that our shingles perhaps average twice four inches, at least those with which fast time have been made. At 1500 nails per M, and allowing two minutes to carry up and four minutes to break and distribute on the roof one thousand shingles, we have, at the rate of 1000 per hr., about 2 1/6 seconds to drive each nail. Now as it is easy to perform the actual operation of driving two nails in one second, we have left about 3 1/3 seconds (2 nails per shingle) to handle the shingles, and do other necessary motions.

Perhaps it will be hard for Mr. Grant to believe that we strike four blows per second, when he has estimated one per second. I believe if he will watch a speedy lather nailing ends, he will see him drive five or six nails (as many as he takes from his mouth at once), at that rate. As it is much easier to drive nails in shingles, because of the soft wood in shingle and sheathing, and the better position of the hands for rapid driving, it really isn't hard to drive two nails in one second.

Fast Shingling Motions Analyzed

I will endeavor to analyze the movements made in our method of shingling, but the best I can do will sound like a very slow process. So would the analysis of a race-horse's movements, or the movements of gas, oil and mechanism is an eight cylinder car, sound like the analysis of a slow process, but we know better.

I thought I had explained the motions quite fully in the April number, but as I haven't one by me at present, and don't remember exactly how I described them, I will go over the subject again for the benefit of Mr. Grant.

We will begin with the shingles open and a handful in place, as shown in photo in April number. With the left hand, the shingle is placed on gauge, hatchet held in place by the right. Then shingle is held in place by head of hatchet, while left hand gets two nails from the mouth. Left hand holds shingle in place while first nail is driven on far side of shingle. Head of hatchet and left hand travel almost together, from first nail to second one on near side of shingle, and nail is started without stopping left hand as it continues back to the pile for another shingle. In the meantime, the nails are made ready in the mouth again, two of them sticking through the teeth and separated a little way so that they can be started one at a time easily. Sounds like a slow process, doesn't it? But three seconds is plenty of time when things are working right. Say it takes four, and the shingles average 8 in. wide, as those do with which extra fast time have been made. We have 2000 seconds consumed in actually nailing on four bunches of good wide shingles. We have 1600 seconds or over 26 minutes left in which to take nails into the mouth, move stool, carry up and break shingles, hunt for one to fit the place you want to fill, etc. Now, from the way I have it doped out, you will see that nearly half the time goes into other work than the actual nailing of the shingles, and I think I am close to right.

Well, I am making quite a long letter of this, but will add a few words for the benefit of Mr. Morris. He surely miscalculated a little when he figured 16 nails per minute. I believe he could beat that speed with 8d common nails in sheathing. I know I could. Will say his guess is right about my average, as I am just the reverse of those men he has seen hustle and sweat. I don't try to "tear the bone out," except for exhibition purposes, or in case of a big rush.

In answer to his other question, will say that I have been considered good on house work for over 10 years. Usually have been foreman on such work for the last seven or eight years. Usually drew a little more pay than the sale. Would like to have steady work tearing off old roofs for Mr. M. at the rate of 25c per M of new shingles used. I believe I could do better at that than I could laying the new ones.

I always carry up two bundles, as that is all I can shoulder alone. However, three (dry ones), wouldn't be too much for a load. Four and five are only for fun, or to win a bet.

Since starting this letter, I have found that Mr. Goodroe mentioned in a former letter, has moved into my neighborhood, and he tells me that he and Mr. Towne when working together about seventeen years ago, used to average seven thousand shingles in eight hours on straight work. He says that Mr. Towne put on 8 M in 8 hours and 20 minutes on the Chautauqua buildings in Boulder, Colo. I told him that the folks back east were skeptical about what I said in regard to speed, and he laughed and told me that he hadn't shingled for two years, but would bet money that he could put on a thousand an hour without practice.

There was one big record made here in Boise, which I haven't mentioned yet because I haven't been able to learn the man's name, though I have seen him work, and know he is a good one. Carpenters here claim that he put on an average of 9 M in 8 hours, on a big barn here. I will look up this job and send in the actual figures. Then, I think if there is any more skeptical ones, I will turn them over to some other correspondent, as I expect to take my tool kit and move into the hills nearer the trout fishing and grouse shooting.

Seems funny none of the fast men on the coast have noticed the comments on my article. I'll bet that any contractor in California could send in names of men who could do their thousand an hour.

It is surprising to some of us out here that the Easterners haven't even heard of the way they do it out here. My friend Green, when we first met about six years ago, told me that we could go back to Indiana and Ohio and win all kinds of money betting on shingling. If I had known how easy it really was to start an argument on the subject, I believe I would have been tempted to go.

Hoping there is no hard feelings.

Speaking of wide shingles, I examined some good ones in a lumber yard here, and I found that they average about 9 inches wide through a thousand. Some bundles will have only two in each layer. Some will average even wider, as they have many which are wide enough to reach clear across the bundle.

O. P. PIERCE.



Round Barn for Beef Cattle Feeding

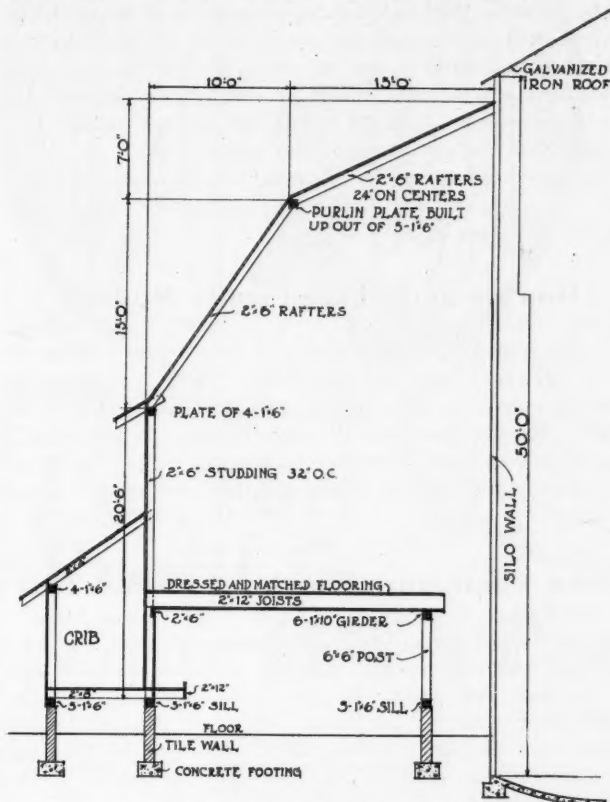
To the Editor:

Knoxville, Iowa.

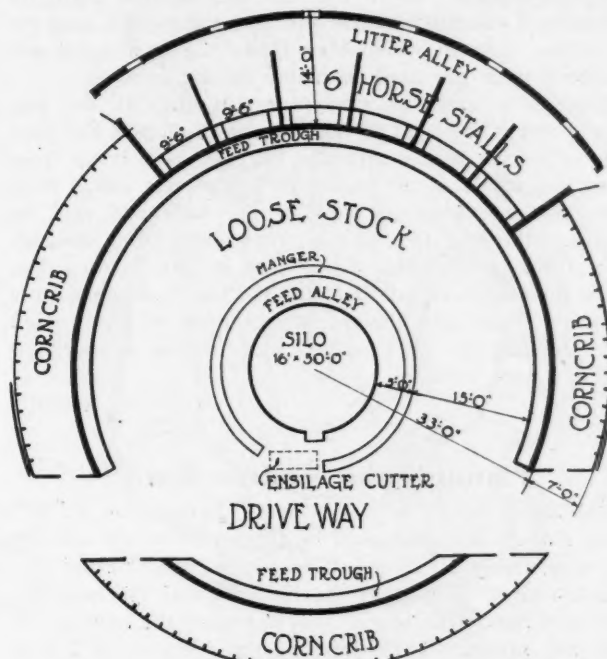
Here are photograph and plans of a round barn that I built last fall out on my brother's farm 10 miles southwest of here. The main part of the barn is 66 feet in diameter with 20-foot studding. There is a lean-to crib for corn,

7 feet wide all the way around, except a space of 50 feet, which is 14 feet wide. This is for the horses. The rest of the way it is 7 feet.

This barn is built to feed cattle in. It will hold eighty head of steers and their winter's feed—4,000 bushels of corn, 100 tons of hay, and silage. There is a silo in the center 18 feet in diameter by 50 feet high.



Half Vertical Section, Showing Construction.



Ground Floor Plan, 66 Feet in Diameter Out to 7-Foot Cribs and 14-Foot Horse Stable.

the sheathing 5 inches center to center and laid the shingles 5 inches to the weather. I ripped 1 by 6-inch cypress fencing into 1 3/4-inch strips for the sheathing and the floors. For the corncrib floors and also the feed bunk in front of the corncribs, I bent the sheathing around in a true circle. There is no floor in the barn, only in the



Beef Cattle Feeding Barn, 66 Feet in Diameter, Built by Clarence James, Knoxville, Iowa.

corncribs; the balance of it is dirt floors. It is sided with clear fir drop siding, and the foundation is tile blocks measuring 5 by 8 by 12 inches.

The silo is built of cement staves which measure $2\frac{1}{2}$ by 10 by 36 inches. To fill the silo they set the cutter in the manger around the silo and put the blower pipe up the chute, through which they throw the ensilage down, and feed it in the bunk in front of the corncrib.

There is a track for a hayfork that goes all the way around and is fastened to the plate at the hip in the roof, and they drive inside with the hay and take it up from there just inside of the big door on the east side. They also set the engine out east of the barn and run the belt in at the east door to the cutter when filling the silo.

On the side where the horse barn is there is no siding below the roof over that part and the hay is dropped from the mow down into the manger in front of the horses. The studding in the outside wall of the corncrib is set on 2-foot centers.

CLARENCE JAMES.



Planning the Modern Barn

To the Editor:

Lafargeville, N. Y.

The modern dairy barn will be different from the old time one in many ways. It may have a plank truss frame or a balloon frame. Instead of the beams across the barn, the joists will run across, spaced two feet apart the same as the studs and rafters. These joists of three lengths of 2 x 8s spiked together will rest on girders running the long way of the barn.

The girders will be made of three or four thicknesses of 2 x 8s bolted together; they will be supported on iron posts set in line with the stanchions. The floor will be entirely clear except for the stanchions, there being no posts between the cows.

The roof will be steep, say one-half pitch, or it will be a

dow, being raised by a rope or chain over a pulley, and having a weight to balance them. Or, there may be two doors, sliding down on tracks just under the cornice and balanced by weights.

All the doors of the new barn will likely run on tracks rather than swing. There will be tracks for the manure carrier, and for the carrier to bring the ensilage to the cows.

The floor for the cows will be of concrete or wood blocks.

There will be 4 square feet of glass in the windows, not for the entire barn, as was the old style, but for each cow. Then there will be some system of ventilation to provide for the large amount of fresh air needed by the stock. Our grandfathers did not figure on this point.

The silo is almost as important as all the rest, for unless the cows have sufficient and proper food, they cannot soon pay for the new barn.

JOHN UPTON.



Double and Three-Family Houses

To the Editor:

Southbridge, Mass.

I read with interest the letter in the August number by W. L. Stewart of Bristol, Conn., and I think his suggestion is worth notice; as plans of two and three-family houses are more in demand than plans of single houses. At least that is the impression I get from this locality, as we see more two and three-family houses going up than we see of single houses.

LOUIS BOUSQUET, JR.



Barn Ventilators Weather Unusual Test

To the Editor:

Hartland Minn.

A year ago last April I built a barn 36 x 70 feet with concrete block walls on my farm four and one-half miles east of Hartland and purchased two "King" aerators No. 350, which were used on this barn. On June 23rd a tornado passed over my place, leveling barn to the ground, breaking the roof in four sections and scattering the cement blocks over the premises.



The Only Part of This Barn to Weather the Tornado Was the Metal Ventilators—They Will be Used Again Without Repair.

gambrel roof, to give more storage room; the covering may be of metal.

The gambrel roof barn may have plank trusses spaced 10 to 16 feet apart to support the plates, purlins and ridge on which the rafters rest; or there may be a truss every two feet, formed by the studs, rafters and the braces fastened to them.

The barn floor with its big doors on each side is not found in the modern dairy barn. It takes up too much room. Instead, the hay is taken in through doors way up in the gable end. These doors may be arranged to slide down like a win-

I am sending you enclosed a post card showing the condition of the aerators which I am pleased to say are still in good condition. That part above the base is not out of plumb or damaged in any way. The base is bent and twisted and can be repaired with very little expense.

Am very much pleased that I was persuaded to purchase the aerators as I now realize that they will stand up in all sorts of weather. I am rebuilding the barn and will use the same aerators again and I would not today trade the two aerators in their condition for new ones of any other make.

PETER J. CHRISTOPHERSON.



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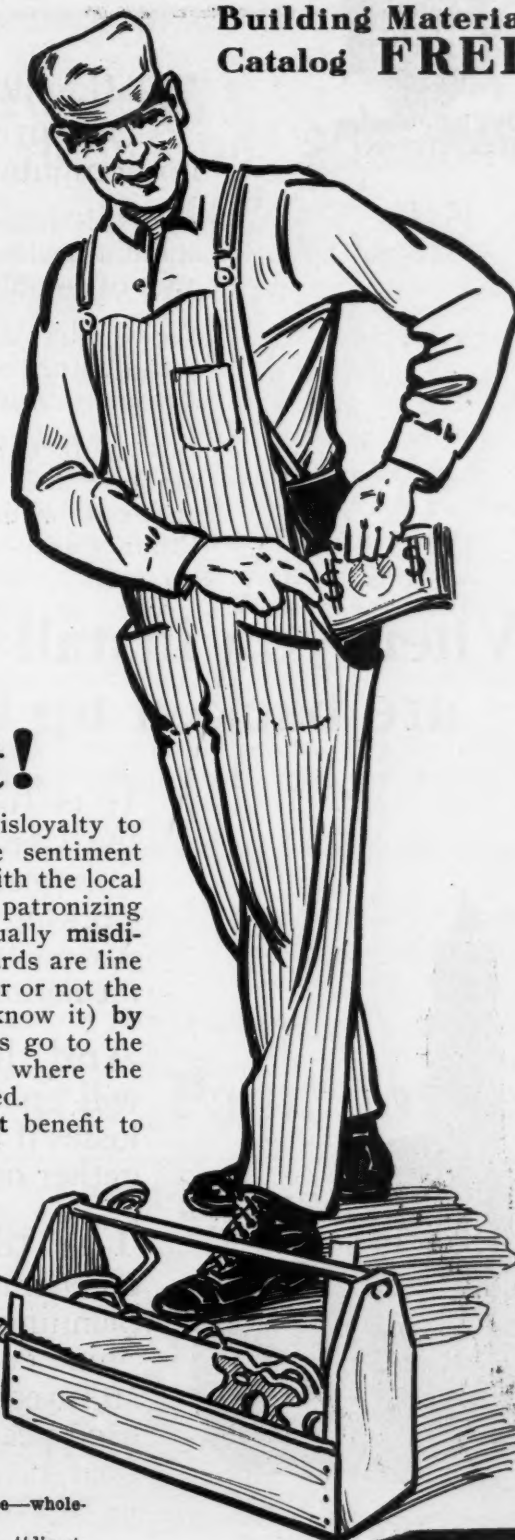
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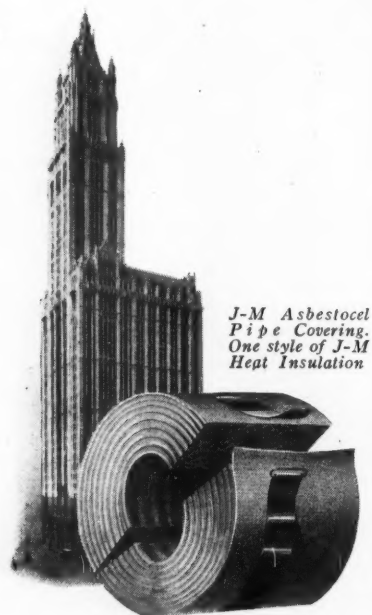
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Every Carpenter and Builder should be acquainted with distinctive features of J-M Transite Shingles.

Nothing is more satisfactory and essential to the Residence Owner than to have an artistic, weather-proof roof—a roof with lasting qualities—a roof that will give no trouble and need no further attention.

Nothing is more discouraging or annoying to the Roofing Dealer than to be held up on the last payment because the roof leaks or is cracked or warped.

When slate is used, larger rafters are necessary. It is heavy—expensive to apply, besides being brittle and thus easily broken.

Wooden shingles are artistic, but they warp and shrink—they need staining and invite fire from falling sparks.

J-M Transite Shingles, made of asbestos and Portland Cement, will not warp, split or curl. They are as fireproof and lasting as stone—are easily applied and they are artistic in appearance.

These shingles are made in a variety of sizes, in two thicknesses and with rough and smooth edges.

J-M Transite Shingles need no painting—they come in three fast colors—gray, brown and red and readily harmonize with the color of the side walls. The gray shingles may be stained any desired color to fit in with the color scheme.

Ask us for information that will show you the profits in these shingles.

J-M Fire-Proof Cold Water Paint makes shops and factories brighter

J-M Fire-Proof Cold Water Paints are in demand for both inside and outside work. They increase the light reflecting capacity of interior walls to a point where lighting bills are often cut 25%.

Easy to apply—by brush or spray. They are widely specified and every specification is backed by J-M Responsibility.

They contain no oil, alkali, lime or chemicals and are mixed with ordinary water. They are endorsed by Underwriters as an approved fire retardant. Spreads farther and better than oil paints and does not discolor.



Euclid Garage, 13th St., near Euclid Ave., Cleveland
"Largest in the World." J-M Fire-proof Cold Water Paint

H. W. JOHNS-MANVILLE COMPANY

Akron
Albany
Atlanta
Baltimore
Birmingham
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Buffalo

Chicago
Cincinnati
Cleveland
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Houston

Indianapolis
Kansas City
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Louisville
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Omaha
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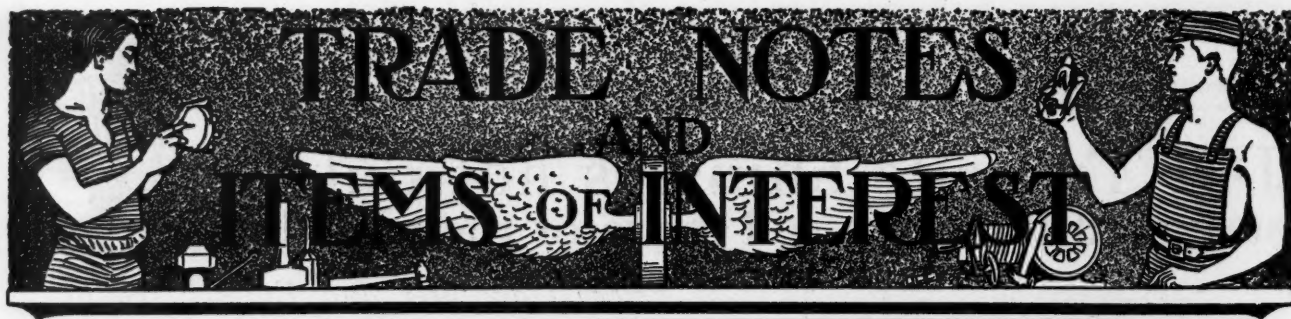
Pittsburgh
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Rochester
St. Louis
St. Paul
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San Francisco

Seattle
Syracuse
Toledo
Washington
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Youngstown

THE CANADIAN H. W. JOHNS-MANVILLE CO., LTD., Toronto, Winnipeg, Montreal, Vancouver

3206

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

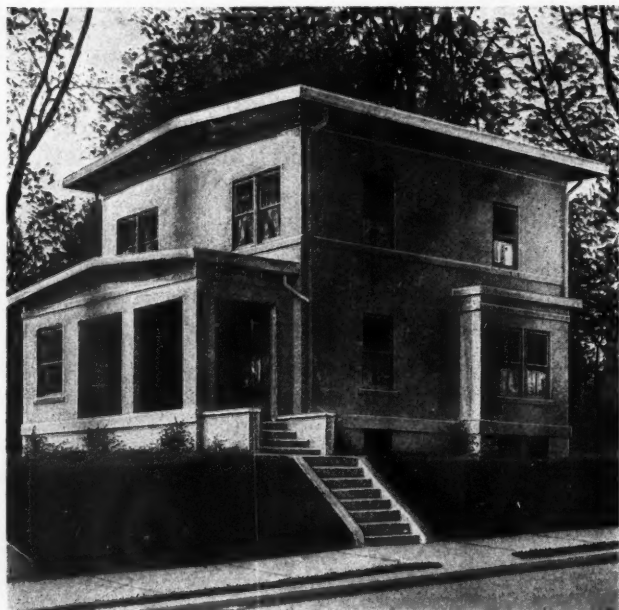


Through this department the Editors aim to keep builders, contractors, carpenters and architects in touch with what their friends, the manufacturers, are doing for them in new or improved tools and machinery, methods and materials—pertaining to building. Items for these columns must have real news value; they are offered here as interesting information for our readers; they are not advertising. No matter will be printed here simply because some advertiser wishes it. Likewise, no matter will be excluded simply because the article described is not advertised in this magazine. Suggestions for the betterment of this department are requested of our readers.

A House that will not Burn

Few sights are more distressing than the burning of a home. It is not the needlessness of the waste, but the utter loss of so much that the family holds dear—so much that can never be replaced. It is a sad end to all the plans of the owner and the labor of the builders. It is a destruction at which every home-loving man shudders.

Yet men will build factories and office buildings as fire-



The Fireproof House—Built thruout of Steel and Cement. Erected in Youngstown, Ohio, by The General Fireproofing Co. Architect, Chas. F. Owsley, Youngstown.

proof as their office safe; they will protect the lives of their employes by every known device; they will guard their business records and materials at any cost; and at the same time house their family in dwellings as inflammable as kindling.

The man of today is thinking more about the safety of his home. He is beginning to realize that he must fight fire and decay when he builds. The fireproof idea is gripping the popular mind.

And the fireproof house is here—a reality. There is also a vast collection of data, information on every detail of its construction—specifications, etc.—so that anyone interested may be able to work out this new building idea to his own satisfaction.

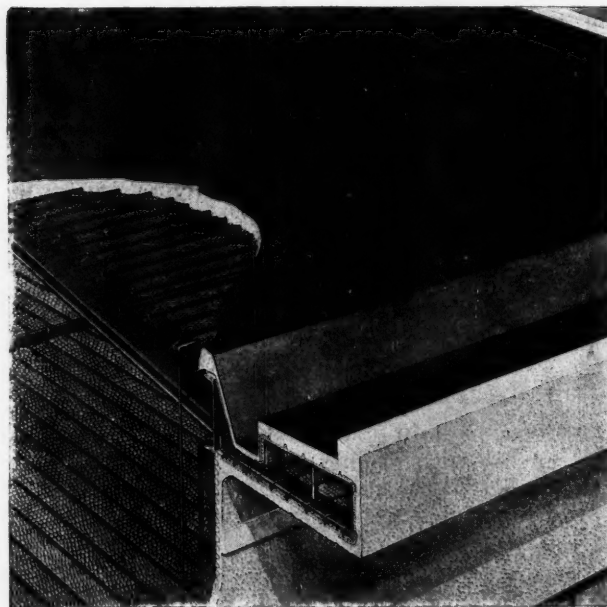
The illustration herewith shows fireproof construction. The frame in this house is steel and all walls, partitions, ceilings, floors and roof are steel and cement. The foundations, of 9-inch solid concrete, are carried to the grade line. From that point to the first floor there is an 8-inch brick wall. The steel columns supporting the floors and roof are em-

bedded in the concrete foundation—no chance for vibration.

The roof is of concrete applied over "Self-Sentering," a material used in the construction of light-weight, thin slabs of concrete, that equal in strength old-time, heavy concrete. The "Self-Sentering" is merely laid over the supports and $2\frac{1}{2}$ inches of concrete placed on top of it. Over the concrete is placed a mastic waterproofing, "G-F No. 250," which is so elastic and pliable that contraction and expansion have no effect upon it—the waterproof film is always perfect and protects the concrete.

The side walls are formed of "Trussit," reinforcing material for concrete walls, partition, etc. The "Trussit" is wired to the steel frame and plastered on both sides with cement mortar to a thickness of 2 inches. The finish coat on outside if waterproofed with "G-F No. 10 Integral Waterproofing Paste." Over the inside of the frame and fastened by wiring, is "Self-Sentering," plastered with cement mortar on the inside only, to a thickness of $\frac{3}{4}$ inch. These two cement slabs, one on the inside and one on the outside, form a 4-inch air space.

Floors are $2\frac{1}{2}$ inches of concrete over "Self-Sentering." The "Self-Sentering" is placed directly over the I-beams and concrete over it. On top of the concrete is a half inch sanitary, non-combustible composition flooring. This is car-



Detail of Roof Showing Construction of Enclosed Gutter. Note Cement Plastered "Self-Sentering" Ceiling Suspended from Roof by Hangers.

ried up over the sides of the wall, forming $\frac{7}{8}$ -inch thick base boards.

Partitions are 2 inches thick—solid concrete reinforced with "Trussit." The sheets of "Trussit" are merely fastened top



Use Asphalt Shingles on Re-Roofing Jobs

WHEN you lay an Asphalt Shingle Roof you make a permanent friend of that house owner. Without any additional cost you give your customer a *permanently* beautiful roof, that is fire resistant, that does not crack or curl up, and that *stays young*.

National Re-Roofing Week—Oct. 4 to 9 Asphalt Shingles

"Destined to Roof the Nation's Homes"

Carpenters, Contractors and Roofers are urged to take special advantage of our wide national advertising of Re-Roofing Week in the magazines! You can make extra profits during this week—and after—by pushing Asphalt Shingles to any of your customers who need a new roof. You can undoubtedly land many sizable re-roofing orders if you telephone, write or call upon some of your likely prospects during this time. Our extensive advertising interests the public in Asphalt Shingles and helps you get the order.

Remember that you can lay Asphalt Shingles much faster, and that the saving in labor costs is *clear profit to you*. The uniform size of Asphalt Shingles and the fact that fewer are needed to cover a "square" are two of the reasons for this additional profit.



This little mark carries a message. It identifies the packages of the makers whose Asphalt Shingles are good enough to stand the acid test of advertising—and who are backing this publicity work. Always specify this "A. S. P. B." label; it is roof insurance.

You Need This Free Book! Every Carpenter, Contractor and Roofer should have our roofing booklet, "The Roof Distinctive." It gives facts about Asphalt Shingles that will help you get more business and give better satisfaction to your customers, because it is the most *efficient* roofing known for the price. Ask for it on this coupon and we will send it *free*.

Asphalt Shingle Publicity Bureau

855 Marquette Building, Chicago

Asphalt Shingle Publicity Bureau 855 Marquette Building, Chicago

I want your free book of information, "The Roof Distinctive." Please send it to me.

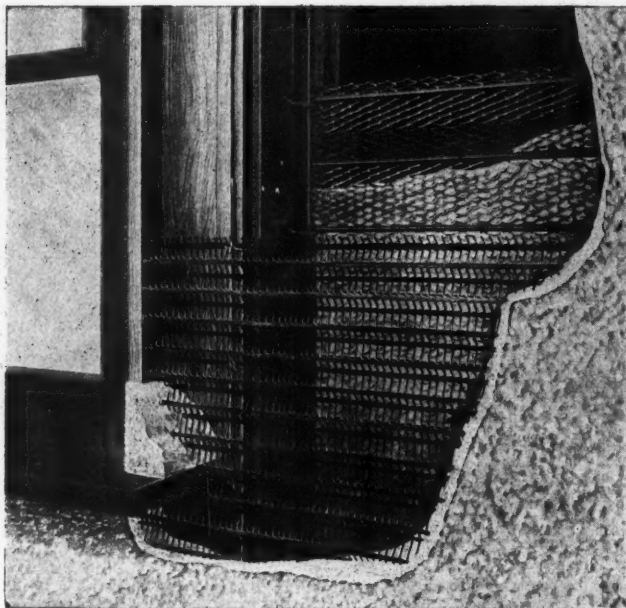
Name _____

Street _____

Business _____

Town _____

State _____



Details of Wall Construction Around Window Frames. "Self-Sentering" with Cement Plaster Inside and a 2-inch Cement Slab Reinforced by "Trussit" on Outside, with a 4-inch Air Space Between. Note Channels which Hold Window Frames in Place.

and bottom and plastered both sides, no permanent studding required. In addition to being fire-retardant, the partitions are wonderful space savers. Conduits, water pipes, etc., are taken care of as easily as with hollow partitions.

Ceilings are of "Self-Sentering," fastened by clips to the under side of I-beams and plastered with cement mortar.

The stairway, an important detail in the construction of

any fireproof building, is absolutely proof against the action of flames.

The interior trim is of wood, fastened with screws. Metal trim could be used, if desired.

The house can be built with wood frame, cement stucco outside walls and cement plastered, steel reinforced partitions and ceilings, concrete floors and roof; brick walls with metal lath inside walls, ceilings and "Self-Sentering" concrete floors and roof; stucco on hollow tile for outside walls with non-burnable interior, etc.

According to the figures of the General Fireproofing Company, the cost of the fireproof house as built is approximately 21c per cubic foot.

If built with 12-inch solid brick walls with same interior it would cost 28 cents per cubic foot.

If built with stucco on hollow tile with same interior it would cost 26 cents per cubic foot.

If built with solid brick with wood interior it would cost 19 cents per cubic foot.

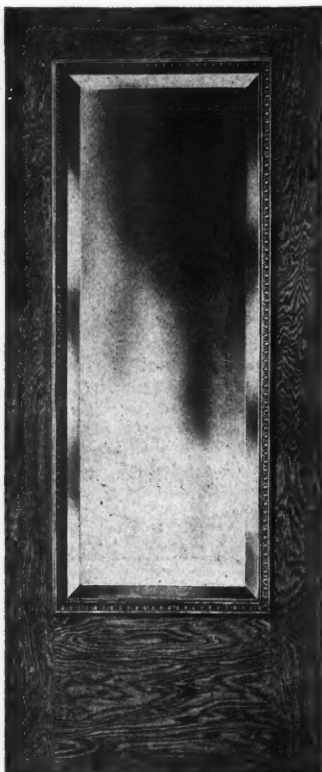
If built with veneered brick with wood interior it would cost 17 cents per cubic foot.

If built with stucco on hollow tile with wood interior it would cost 17 cents per cubic foot.

If built of stucco on metal lath with wood interior it would cost 16 cents per cubic foot.

While these costs are approximate, they represent as accurately as can be estimated, the difference in cost between the various classes of construction, and the proportions will be substantially the same in different sections.

These model houses were built by the General Fireproofing Company of Youngstown, Ohio, to show how this class of building can be accomplished. In erecting these structures the company has amassed a vast amount of information, all of which it will gladly distribute to interested parties. There is a very complete and attractive booklet awaiting you—ask for it.



No. M-89—Morgan Front Door with Heavy Raised Egg and Dart Moulding, or plain Moulding if desired, and Genuine Polished Bevel Plate. One-quarter inch Veneer. 15 sizes oak and 3 sizes birch carried in stock for immediate shipment. See Morgan Millwork Handbook

We Are Proud of This Letter— Read It and See Why!

"Cologne, Germany, March 7, 1914.

Morgan Sash & Door Company, Chicago, Ill.

Gentlemen:—Just ready to put up a beautiful house and know of your doors from experience. Wish you would send me your complete catalogue.

Very truly yours, J. SCHUERMANN."

MORGAN DOORS

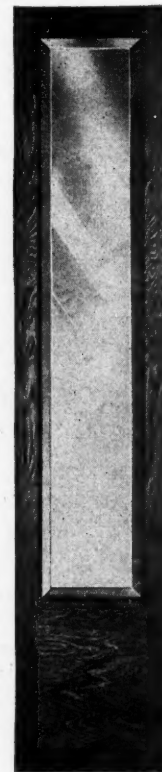
a genuine American made product, are thus complimented by foreign trade from a country where manufacturing has reached such a high point of development. American skill, ingenuity and design are alone responsible for Morgan Doors. We ask the co-operation of every contractor, architect and dealer to further the great campaign for goods "Made in U.S.A."

Your dealer can supply MORGAN DOORS without delay from our immense stock.

Morgan Sash & Door Company
Department A-23, CHICAGO

FACTORY: Morgan Co., Oshkosh, Wis.
Eastern Warehouse and Display
Morgan Millwork Co., Baltimore

DISPLAYS: 6 E. 39th Street, New York
309 Palmer Building, Detroit
Bldg. Exhibit, Insurance Exch., Chicago



No. M-89—Morgan Side Light

Built to harmonize with door M-89. Six sizes—oak and birch carried in stock.

H-L-F Lumber

Will make you more money as it has for these 6 Men.

All of these letters were written during 1915—most of them within the past two months—they are the kind that we receive every day from carpenters, contractors and builders. They tell of big money saved and great satisfaction resulting from buying lumber of H-L-F.

Low prices now

H-L-F prices are even lower now than when these men bought. They are so low that the shrewd buyers are looking ahead and buying for their needs later on. Lumber will probably never be so cheap again. It's cheaper now than you even *dream*—send a bill of materials and find out.

Immediate shipment on air-dried beautiful lumber

—lumber that's been air drying all summer long at our big shipping yards at Sumner, Washington—lumber that's clean, straight, beautiful old-growth fir and red cedar—lumber that's ready to load on the cars the day we get your order.

Quick transit

Shipments are going through in great shape this fall. Two weeks is the average time taken to reach our customers. Send us your bill of materials now, and you can have the lumber on the ground in a few weeks, with an extra \$50 to \$500 to make the profit side of your business look fat.

Nearly \$1600 saved on six jobs

On those six jobs listed at the right almost \$1600 was saved. You'd be feeling mighty good right now if you had made that much extra on six of your jobs the past year, wouldn't you? **Write today**—send your bill of materials for quick price—also check items on coupon such as interest you.

Hewitt-Lea-Funck Co.

1408 Crary Building, Seattle, Wash.

Not in any trust or combine
Capital \$1,000,000



HEWITT-LEA-FUNCK CO.

1408 Crary Building,
Seattle, Wash.

Gentlemen—Please send me the following:

- | | |
|--|--|
| <input type="checkbox"/> Barn Builder's Guide (four cents) | <input type="checkbox"/> H-L-F Plan Book (ten cents) |
| <input type="checkbox"/> Delivered, freight-paid price on enclosed list of materials (no charge for quotation) | <input type="checkbox"/> Millwork Catalog (free) |
| | <input type="checkbox"/> H-L-F House Pricer (free) |

Name

Post Office

State

R. F. D.

Saved
\$180

Got better grade

"I am very much satisfied with the lumber, and the shingles were the best I ever saw. I think you saved me about \$180.00 to \$200.00 on the bill and I got better grade than I could have gotten here at any price."

"ALBERT ROCKSWOLD,
Oakwood, N. D.
April 24th, 1915."

Saved
\$500

Liked house very much

"Am well pleased with the quality of the material—I saved \$500.00—and we like our house very much."

"F. A. FEAR,
Big Piney, Wyo.
February 6th, 1915."

Saved
\$250

Well pleased

"I am well pleased with house and saved at least \$250.00 on it, besides saving more than \$100.00 on other buildings. I am well satisfied with your way of doing business."

"L. C. YOUNG,
Bonilla, S. Dak.
February 5th, 1915."

Saved
\$150

No. 2 better than most No. 1

"The No. 2 lumber is better than any No. 1 lumber that ever came to Lucas, Minnesota, before, and we saved \$150.00."

"JOHN GOBLIRSCH,
Milroy, Minn.
February 16th, 1915."

Saved
one-fourth

Well pleased for quality

"To say the least, am well pleased with lumber, in quality as well as in the price. I think I can say truly when quality is counted in that I saved about one-fourth in buying."

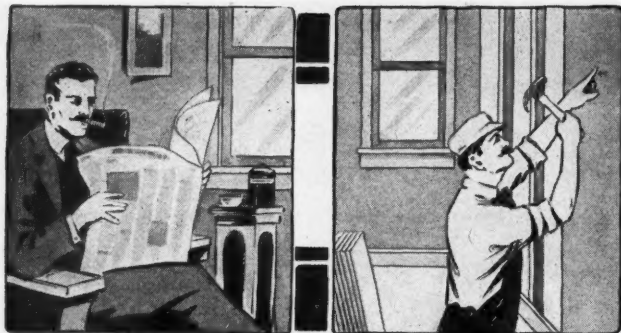
"F. O. OLSON,
R. F. D. Box 7, Stromsburg, Neb.
May 21st, 1915."

Saved
\$9 per M

All parties satisfied

"The quality is as good, if not better, grade for grade and I believe we saved about \$9.00 per M. All parties are satisfied as to quality."

"W. W. DURAND,
Powell, Wyo.
October 3rd, 1914."



WHICH ARE YOU GOING TO DO THIS WINTER?

WILL you sit around waiting for the season to "open up" or will you start something *now* that will bring in a stream of cash all winter long?

UTILITY BOARD In Grained Wood Finishes Brings Winter Profits

Utility Board has given profitable business to hundreds of carpenters and contractors during previous winters.

But, this year, Utility Board possibilities are greater than ever before. The wonderful new grained finishes, in mahogany, circassian walnut and oak, take quickly with prospective customers. For remodeling dens and billiard rooms—for doing any of the numerous "off season" repair jobs, Utility Board in grained wood finishes will best please your customers and bring you long profits easily.

Let us send you sample panels of new grained Utility Board. Write today.

The Heppes Company

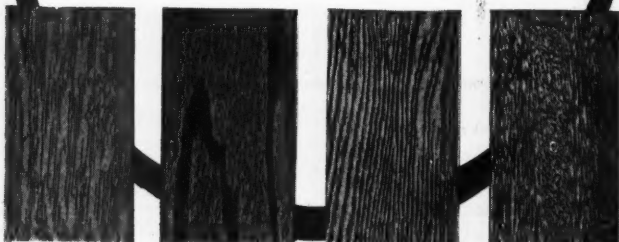
"Giant" Flex-a-Tile Shingles
Standard Flex-a-Tile Shingles

No-Tar Asphalt Paint
Rubbertex Roll Roofing

Other Guaranteed Heppes Products

4503 Fillmore St

CHICAGO



"Bruston" Automatic Electric Systems

An electric lighting system that is a success must not require expert attention all the time. If it is convenient and easy to handle it is a constant source of comfort. In addition to lighting the house and other buildings, the power furnished is available for use with toasters, stoves vacuum cleaners, fans, sewing machines, etc.

The "Bruston" Automatic Electric System is, as its name suggests, automatic in its action. It consists of a gasoline or gas engine, a generator and a small storage battery. When only a few lights are being used, they are operated by the battery. As soon as more lights are turned on, the engine automatically starts itself and furnishes the power directly from the generator. It also recharges the storage battery. The only attention that the machine needs is to keep the gasoline tank full and keep a supply of oil in the reservoir.

The Bruston Electric Lighting & Power Company, Inc., have an attractive proposition for contractors and builders who will install their system. Their address is 126 Liberty Street, New York City. Their machines are made in different sizes so as to be suitable for residences, churches, hotels, small towns, etc. Write for full particulars.



The Engine Keeps Things Going

The engine that is running the hoist, the pump, the mixer, the shop, or the woodworker is the heart of the work. If it stops going, everything else stops. It always pays to have a good, reliable engine on the job—one that you know you can depend on.

The "Ideal" is an engine that is designed particularly for service, say its makers, the Original Gas Engine Company. It will stay on the job all the time and will not fail you at the crucial moment when it is needed most.

Special attention has been paid to its construction so that it will not be affected by conditions on the job. The crank case is dust-proof and the carburetor is dirt-proof.

A card addressed to this company at 630 Kalamazoo St., Lansing, Mich., will bring full details of their line of contractors' equipment.

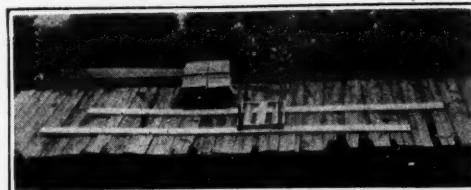


Cut the Cost of Shingling

Taking the waste out of the shingling job, and increasing the amount of work done, is what is accomplished through the use of the Thompson shingle car.

This device fills a long-felt want. Under the former system of laying shingles, the workman was compelled to waste time, energy, and material in doing his work. Now, he can have his shingles close at hand, and is not compelled to break several bunches of shingles. He does a greater amount of work, thus reducing the cost and increasing his profits.

The Thompson shingle car will do service anywhere, on any roof, regardless of elevation or whether the sheathing is solid or spaced. The device is placed either on the sheathing or staging, and is easily pushed along by the workman, affording him an ample supply of material as needed.



This Shingle Car Makes Shingling a Pleasure. Carpenters and shinglers will readily appreciate the great advantage in this inexpensive device, for which we predict a ready sale.

This article is advertised on another page in this paper, and may be had by addressing Mr. W. A. Gradolff, P. O. Box No. 62, California, Mo.



Sure! I'm Busy All The Year 'Round

I Use Dependable



UPSON PROCESSED BOARD



And there isn't a kick in a 'million feet of it. It's the only wall board made that's worth the name, and it's good on a hundred different jobs I land now, that the other man used to get. And what's more, my jobs make good.

You carpenters know how to pick out right products. You pick the right wood for the job. That's part of your business. There's as big a difference in wall boards as in woods.

Maybe you've been stung with other makes that are soft and punky, and that fluff up and work like rotted wood. A lot of boards, you know, are doomed before they leave the factory. Get a piece of Upson Board today and test it yourself. See the difference! It is really synthetic wood—made of wood fibres—people call it artificial lumber.

You can saw it even and true.

Cut it with a knife—perfectly clean.

Plane it as smooth as pine.

Mould it for coves and corners.

You, Mr. Carpenter, can prove for yourself—we leave it to you—

- (1) That Upson Board will give satisfaction to your customer and add to your reputation.
- (2) That Upson Board will give satisfaction to you because you can apply twenty to thirty percent more of it per day than of any other softer and inferior boards, thus increasing your profits.

Cutting out the "hot air" of some board makers here's an honest statement of why Upson Board is unequalled—as you, with your experience in lumber and building products, can prove for yourself:

Upson Board is made of a special combination of tough, wiry, pure wood fibres—mostly spruce. These fibres are built up under tremendous pressure into the hard, wood-like panels.

The kiln-curing of Upson Board removes the excess moisture and reduces contraction and expansion to a minimum. And it is the excess moisture in most boards that causes trouble on the walls.

Next the WATERPROOFING of Upson Board affects the surface so that dampness and moisture cannot easily penetrate it. You have heard a lot of nonsense about wall boards being sized in the centre. It would be equally sensible to paint wood in the centre, moreover such sizing means the use of excess rosin which as Bulletin 89 of the U. S. Department of Agriculture says affects strength and dura-

bility and causes quick deterioration—so you see that kind of talk amounts to nothing.

Then every panel of Upson Board is READY PRIMED OR SURFACE FILLED, so that Upson Board has the most painting surface possible. It is free from greasy wax or paraffine materials. Two coats of paint on Upson Board without a priming coat produce the same results that on other boards would take from three to five coats with a priming coat.

So Upson Board saves your customer an average of \$5 per room, or is cheaper than other boards by \$5 to \$15 a thousand square feet.

Don't let some other class of workmen land the job that should be yours. The contractor who uses and recommends Upson Board need have no "dull season." Its use means work for the carpenter every month in the year. Every one job of building or repairing that is done in your neighborhood may be yours, if you will only use and recommend Upson Board. You are "biting off your own nose" and losing profits you ought to have by advising lath and plaster when you can just as well recommend Upson Board—put it on yourself—and make a satisfied customer.

Upson Board makes a profitable sideline for the contractor. Those carpenters who have shops find Upson Board useful in making cabinets—and many special articles of household use for their customers. Upson Board has been the basis of many a profitable business.

The day of experimenting with wall boards is over. Upson Board is known in the trade as the standard among wall boards. You take no chances in using and recommending Upson Board. It has been tried out in every climate and under possibly every condition, and as a result of its satisfaction, some of the best known carpenters in their communities are using and recommending Upson PROCESSED Board regularly.

Send that coupon today for sample, and start on the road for big business. Our big national campaign is working behind you.

**THE UPSON
COMPANY**
26 Upson Point,
Lockport, N. Y.

Send me large sample of Upson Board, descriptive booklet and full particulars of your carpenter co-operation.

THE UPSON COMPANY, Lockport, N. Y.

Fibre Board Authorities

LOOK FOR THE TRUE-BLUE CENTER

Name

Address

The Lamp for all Uses

Suppose you want to read a book and you also want to sit in the big easy chair and the light is bad, which will you give up, the chair or the book? It isn't necessary to give up either one if you have the lamp shown in the illustration.

This light is designed for all kinds of special cases such as this. In the base of the lamp is a spiral spring that will fasten it to the back of a chair or to the dressing table or the wall, in fact, almost anywhere. It can be used as a desk lamp as shown in the illustration.

In the base there is also a suction cap, so that the light can be supported on any smooth surface such as a mirror. This makes a handy arrangement for shaving.

The lamp can be easily carried in traveling, as the base and the top fit together to form a top shaped case with the light inside.

Further details of this useful, adaptable light can be secured from the Wallace Novelty Company, 22 East 41st St., New York City.



This Light Can be Put Anywhere and It Will Stay.

The "Simplex" Roofing Nail

The accompanying illustration shows the "Simplex" nail made by the H. B. Sherman Manufacturing Company of Battle Creek, Mich.

The manufacturers claim that this nail fills a long-felt want, as it combines two features in one—the one-piece idea and the large head. The very nature of roofing material demands that roofing nails, to be a success, should have a head of sufficient size. The actual area of the head of the "Simplex" nail is four times that of the so-called large-headed wire nail. If roofing material were metallic or wood, it would not be necessary to use large heads, but the material being paper, a large head is essential.

The manufacturers advise that the "Simplex" nails are handled through various wholesale houses, and for regular use are put up 100 pounds to the keg. Where shipped by manufacturers of roofing paper, they are put up in cans.

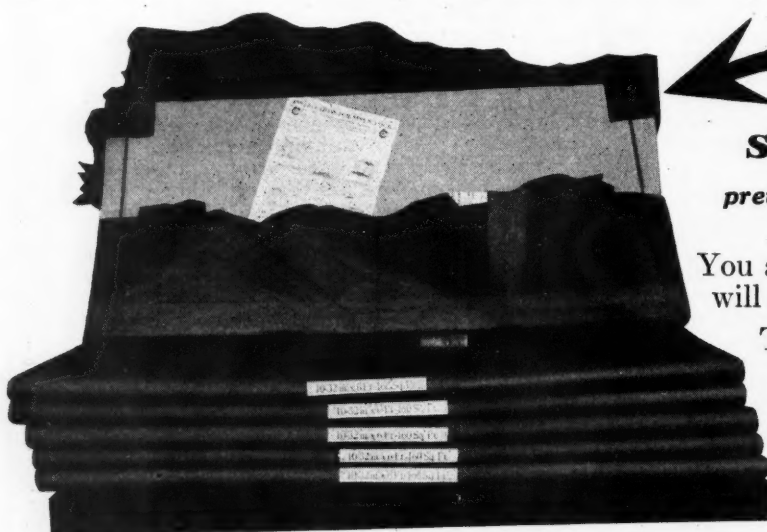


The Famous "Simplex" Nail.

Pa's Mathematics

Pa—Willie, what does the teacher say about your poor work in arithmetic?"

Willie—She said she'd rather you wouldn't help me with it.



New shipping method

prevents warped and broken boards, rope marks and split edges

You are sure that Cornell-Wood-Board will reach you in perfect condition.

The picture tells the story—shows how the corners are protected, how the boards are kept flat, and as a final step how the bundle is wrapped in heavy waterproof jute.

Cornell-Wood-Board

—the better wall board—reaches you perfect

The boards stay flat and straight, which is impossible when ropes are used. Each piece comes out of the bundle just as it went in, straight and perfect, without rope marks, warping and split edges. Boards at the bottom of the bundle are just as perfect as those at the top.

Contractors, carpenters and their customers are all better pleased and served with this new shipping method, also with the uniformly superior quality of Cornell-Wood-Board, sealed through and through against the effects of atmospheric moisture by the exclusive Cornell fibre-sizing process.

Write for samples and complete and interesting information about Cornell-Wood-Board.

Cornell-Wood-Board Mill at Cornell, Wis.

Sales Office, Dept. A-4, Insurance Exchange Building, Chicago

Manufactured by Cornell Wood Products Co., Cornell, Wis.
C. O. Friable, President

Permanent Exhibits: Insurance Exchange Bldg., Chicago, Ill.
National Soo Line Bldg., Minneapolis, Minn.

IT will pay you to use Fiberlic when your patrons specify wall board for wall and ceiling construction, because of the superior strength and rigid qualities of Fiberlic over ground-wood boards.

Fiberlic, being an absolutely uniform raw material product (it is made of strong, tough imported root fibers), has more "body" to it than a board made up of several different materials of varying qualities. Try to break a piece of Fiberlic and any ground-wood board of the same thickness with your hands—you'll soon be convinced which is the stronger.

Fiberlic makes for permanence; strong, snug, good-looking interior construction.

Let us send you Sample, Prices and Booklet. Dealers wanted.

Fiberlic

Has Perfected Wall-Board Construction

Because of Its

STRENGTH



Use Fiberlic Paints

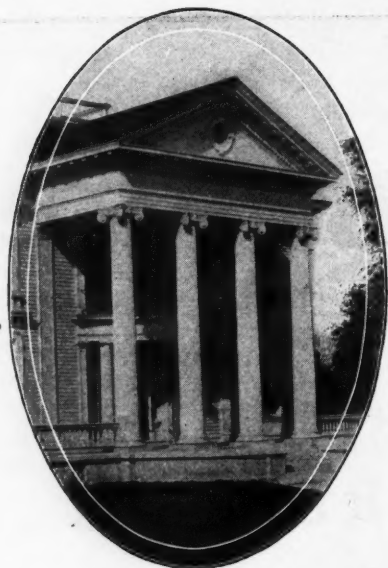
To insure the best finished results for our product we recommend using Fiberlic Paints and Stains. They are made in many colors and tints, and make a soft, velvety finish of surpassing richness. These paints have been specially developed for Fiberlic use and will give the best results wherever our product is used.

THE FIBERLIC COMPANY, Camden, N. J

New England Branch: 140 Washington Street North, Boston, Mass.

New York Branch: Fuller Bros. Co., 139 Greenwich Street

London (England) Branch: MacAndrews & Forbes, Ltd., Finsbury Court, E. C.



White, Whiter, Whitest

There is always one detail or another about a house that calls for white paint; and then it cannot be too white.

When you specify Carter White Lead for any painting you are sure of getting the whitest white lead on the market—the Carter process excludes everything that might discolor it or impair its paint value.

The word "Carter" is not on every keg of pure white lead you may see, but you will never find it on a keg that does not contain perfect white lead and lead that is perfectly white. Carter is not simply "pure white lead;" it is a better material in every quality that makes pure white lead the most desirable paint.

Specify Carter for your finest painting and decorating.

On large undertakings, when you want to be conservative and play safe, Carter Pure White Lead is the paint of known value. Behind it is a reputation for uniform, steadfast quality for fineness of texture and for every feature that makes pure white lead the paint to be relied upon.

Carter White Lead Company

West Pullman Station A

Chicago

Illinois



If you want to know the details of painting, "The Carter Paint Calculator" will interest you. The price is 25c, but it will be sent to any architect or contractor with our compliments upon request.

Present high prices on other roofing materials are increasing greatly the use of prepared roofings. Many are now willing to try them who have always doubted the efficiency of such roofing. To satisfy such people more than usual care will be necessary to see that the prepared roofing is properly applied.

The "Simplex" roofing nail is a perfect fastener for prepared roofing, making a perfect seam, and hence insuring longest life for roof.

Builders should secure "Simplex" nails from hardware dealers and insist that they be packed in the rolls with all prepared roofing they buy.



Keep Your Feet Dry

It's mighty hard to keep your feet dry and warm when you are working down in an excavation or with concrete. Ordinary shoes become water-soaked in a little while and there is danger from colds and other troubles.

The shoes shown in the illustrations are designed particularly for concrete workers, excavators, draymen, bricklayers, etc. They are made with an oil tanned leather top and solid aluminum sole. The makers says that these are as light as an all-leather work shoe and that will wear two or three times as long.

The shoe is made in several different styles which are described in their catalog that will be sent on request. Address the Overland Shoe Co., Dept. G, Racine, Wis.



New Catalog of the Chicago Spring Butt Co.

Contractors and builders should be familiar with high grade interior door hardware of all kinds such as are shown in this new Spring Butt Company catalog. There is an exceptionally fine line of spring hinges of all kinds

with a great variety of finishes. The catalog is very attractively gotten up and shows illustrations of all the kinds of hinges and other door fixtures. A complete list is given of the methods of finishing with prices for each style. All the



Floor Hinge.



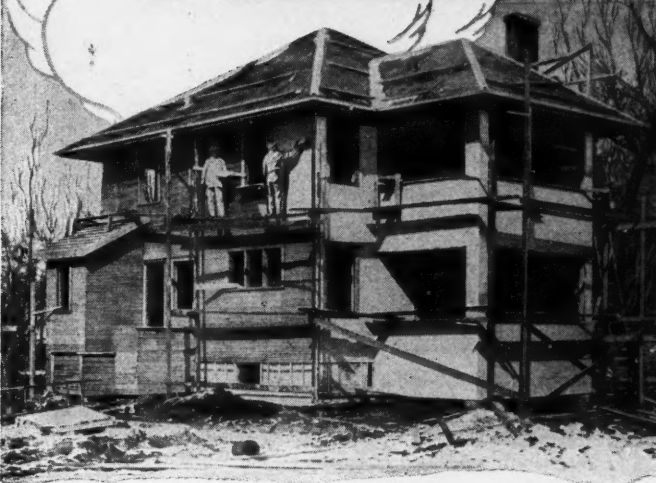
Triplex Hinge.

styles are made in several sizes so as to fit different conditions.

Builders should have a copy of this on file as it will be mighty useful for reference purposes. Write to the Chicago Spring Butt Co., Chicago, Ill., and ask for catalog C 32. They will be glad to send it to any of our readers.

KELLASTONE

IMPERISHABLE STUCCO



**Can be applied
in zero weather**

Contractors, this is of vital importance to you. It means that you can operate throughout the winter months, when help is cheapest **without danger of losing a single job regardless of the temperature.** Thousands of Kellastoned buildings throughout the country bear mute

evidence to the truth of this statement. The photographs shown on this page were taken with the temperature hovering around zero. Today the stucco exterior of these buildings is just as perfect—just as beautiful as if they were Kellastoned on an ideal summer's day.

The reason is simple: Kellastone is the only stucco not mixed with water. It is mixed with our special non-freezing mixing compound. It can't freeze. No matter how cold, Kellastone works more freely, spreads easier, and labor of applying cost is less than any other stucco. It is the only logical stucco to use. You save in cost of applying. You can apply it when labor is cheapest. And you can't lose a job, no matter how cold the weather, if you follow our simple directions.

Contains no Portland Cement, Lime or Gypsum

Kellastone Stucco is positively moisture-proof and fire-proof. It withstands far greater settling strains than any other stucco without cracking. It is a non-conductor of heat, cold and dampness. Immune to expansion and contraction. Possesses greater tensile and tension strength than cement stucco and is not brittle.

It can be successfully applied over wood, lath, metal lath, byrket sheathing, hollow tile, brick and stone walls. It bonds perfectly to window casings, panel

work; in fact, all surfaces to which it is applied.

It can be given a smooth, stipple sponge or dash finish. Where color effects are wanted, we recommend dry dashing with marble or granite chips of the natural color desired.

Kellastone is especially valuable in remodeling old buildings and giving them a modern, up-to-date appearance, thus increasing rentals and sales values.

Kellastone Composition Flooring

can be laid over bases of concrete, wood or steel, and forms a tough seamless mass over the entire floor including cove and base if desired. Cleanly, resilient, fireproof and waterproof. Ideal for sun parlors, bath rooms, kitchens, entrances, etc., in private homes and apartments, and for public buildings of all descriptions.

**Send for Literature Giving
Complete Details**

SPECIAL NOTE TO ARCHITECTS:

Some of the ingredients embodied in composition floorings are purchased abroad. Owing to the war, the supply of these ingredients has been cut off. We have been fortunate in negotiating for a sufficient quantity of these materials to last indefinitely. Consequently, you are assured prompt delivery of Kellastone Composition Flooring regardless of war conditions for at least a year.

The NATIONAL KELLASTONE CO.
504 Association Bldg. Chicago, Ill.



"Candle Principle" in Heating System Overcomes Soot-Trouble

From exhaustive and scientific tests it has been clearly proved that soot is practically the most powerful non-conductor of heat known to engineering science. It is a robust heat insulator—an element that resists heat to a greater degree than any other known mineral substance. Three hundred and ten degrees of heat passing through one-eighth inch of asbestos will heat five times more water than if passed through the same thickness of soot. In other words, more heat would be transmitted to boiler tubes through a full one-inch wrapping of asbestos than through a one-fifth inch of soot. This is one of the most important facts ever pointed out in connection with steam engineering.

Kent's Mechanical Engineers' Pocket Book, the standard work in its field, gives a most striking table that bears directly on this point. (Page 558, Eighth Edition).

WATER HEATED THROUGH VARIOUS SUBSTANCES.
Thickness of each substance 1 inch
Temperature applied to each 310° Fahr.
Temperature increase of water in each case 10° Fahr.

Substance.	Number of pounds of water heated.
1. Loose Wool.....	8.1
2. Loose Lampblack (Soot).....	9.8
3. Hair Felt	10.3
4. Carded Cotton Wool.....	10.4
5. Air Alone	48.0
6. Fine Asbestos	49.0

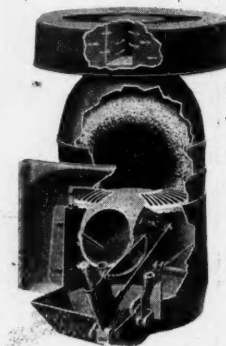
To emphasize still further the heat resisting power of soot, tests have shown that a clean boiler tube will transmit 140 times as much heat to the water surrounding it as will a tube covered with a one-eighth inch thickness of soot.

Such a statement is almost beyond belief, but in view of the thoroughness with which the subject has been analyzed by recognized authorities, its startling truth must be admitted. The average user of a boiler is burning an immense quantity of fuel from which he is getting no returns whatever, in the amount of steam produced.

This formidable problem long challenged the ingenuity of heating system and boiler manufacturers. It remained for The Williamson Heater Company, Cincinnati, Ohio, to perfect a furnace which not only does away with soot, but with smoke, odors, and clinkers as well. This remarkable heater, known as the New-Feed Underfeed, is built upon the "candle principle" made famous by the great scientist, Michael Faraday.

When a lighted candle is held upside down, it produces smoke (and attendant soot), if burned properly, the candle consumes its smoke. Just as foolish, maintain the Williamson Heater Co., as burning a candle upside down is feeding fuel to a furnace or boiler from above, thus swamping the live fire with the new coal. The Williamson Underfeed feeds its fuel from below; the fresh coal is forced up against the live coals and flames which are always above the fuel directly against the most effective radiating surface.

This means that the fire does not have to "fight itself" in order to do what it is intended to do. The fire is not lulled, as must be the case where a top-feed door has to be opened every time coal is to be added. And, since the principle of combustion is up, up, up, all the time, it means



Cut-Out View of New-Feed Underfeed Furnace.

Special Free Offer In DRAFTING!

Never in the history of correspondence instruction has such an offer as this been made. Never again will you have the opportunity to take advantage of such an offer. Here is your chance to get the training you need to hold down a job that pays big money. We will train you—at home and in your spare time—for a well-paying position as expert draftsman. Then, after you have received this training, we will enroll you, absolutely FREE, in our Electrical, Mechanical, Civil or Steam Engineering Course. Drafting is the foundation of all engineering professions. You need drafting as a beginning, and now is your chance to get a thorough training at small cost.

\$20 Drafting Library Free

Enroll now and get this magnificent drafting library FREE! Four big volumes handsomely bound in half red morocco, gold stamped; 1720 pages; 1037 illustrations, plates, diagrams, etc. Worth many times \$20 to any drafting student. Not only will you receive the best expert instruction, but you will have these great books handy for reference at all times.

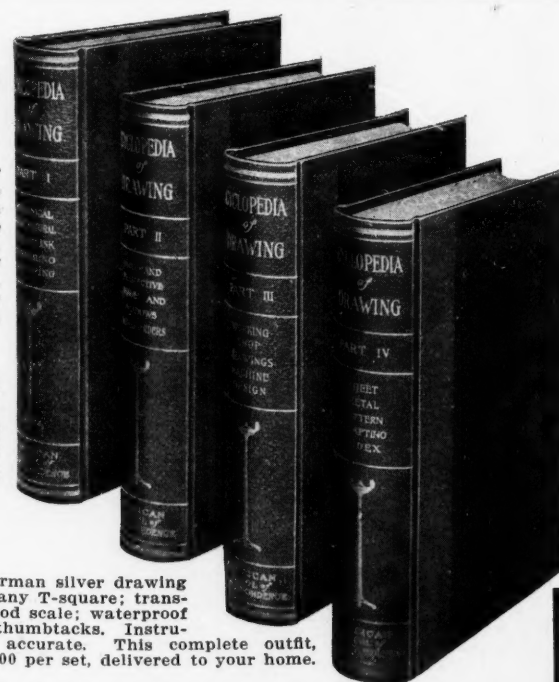
Drafting Outfit at Cost

We supply at cost a complete drafting outfit, consisting of imported German silver drawing instruments in morocco case; 20x25 inch drawing board; ebony lined mahogany T-square; transparent triangles; German silver protractor; French curve; triangular boxwood scale; waterproof ink; pencil; erasers; shield; pencil pointer; handmade drawing paper and thumbtacks. Instruments made by largest and most reliable manufacturer and guaranteed accurate. This complete outfit, offered by many dealers at from \$15 to \$18, will be furnished to you at \$5.00 per set, delivered to your home. This is a much better outfit than the so-called \$20 set offered by others.

Free Instruction In Engineering

Remember—you may pick out any engineering course—no matter what the price—and receive absolutely free instruction. This is a special offer and may be withdrawn at any time. You must act now if you want to get the free library and free instruction in your choice of 20 engineering courses. No other school has ever made such an offer as this. Investigate before it's too late.

AMERICAN SCHOOL OF CORRESPONDENCE, CHICAGO, U. S. A.



FREE INSTRUCTION OFFER COUPON

American School of Correspondence, Chicago, U. S. A.
Please send me full information about your drafting course, also further particulars regarding the free library and your free instruction offer. A.C.&B. 10-15

Name

Address

Crown Your
Buildings with

VULCANITE

Ornamental
Roofing and
Shingles



A Most Pleasing Variety of Effects Obtainable in Colors and Designs

SAFETY AND BEAUTY

Heretofore, safety has been secured by the wealthy by using slate and tile roofs. The man of moderate means had to take chances and has repeatedly seen all he possessed destroyed by a flying spark or a fire brand.

Temporary color effects have only been possible by the use of stains and paints, but these did not withstand sun and rain for any length of time.

It has remained for the Patent Vulcanite Roofing Co. to give the public a roofing material that perfectly combines the qualities of safety, comfort and beauty at so low an initial cost, that no one now needs to put over his home such a flimsy, highly combustible and temporary covering as a wood shingle roof.

Vulcanite Roofings are an unfailing weather-proof and fire-resisting material. Twenty years' service is a reasonable expectancy. Vulcanite comes in rolls and shingles in several patterns that can be worked into a large variety of truly artistic effects.

We shall be very glad to send you our large illustrated catalogue which will show you some of our popular roofings and how they add to the appearance of a building. We'll also tell you just what we do for Builders to help them lay more "Vulcanite." Sit down and write us now. Address main office, Chicago.

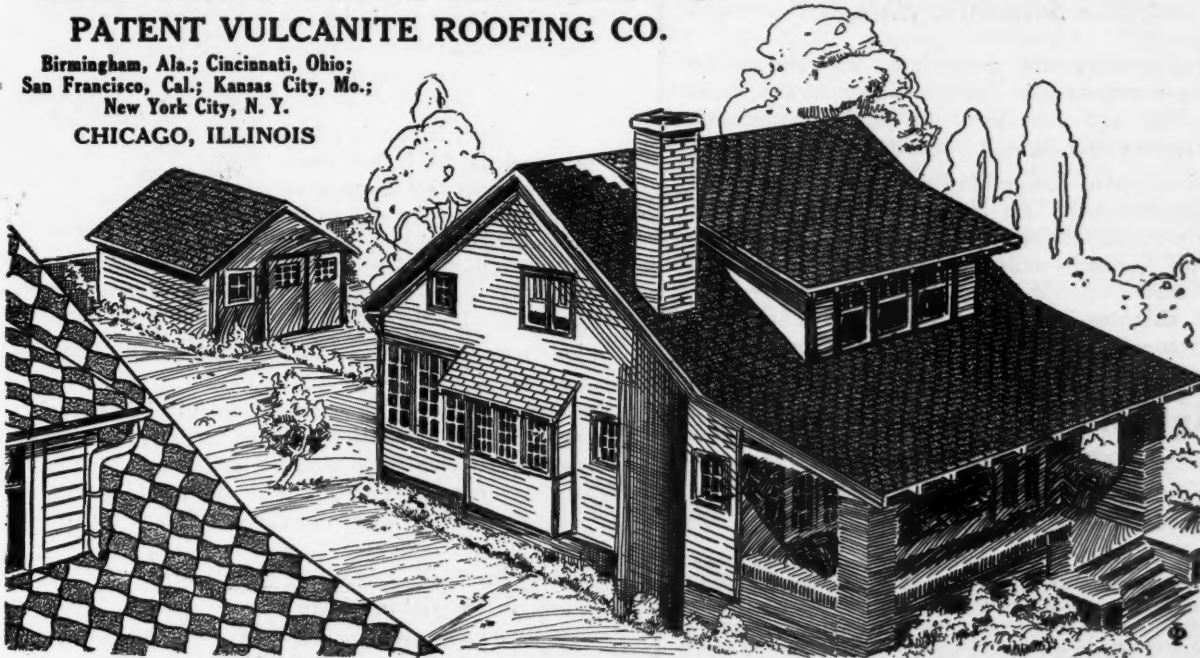
PATENT VULCANITE ROOFING CO.

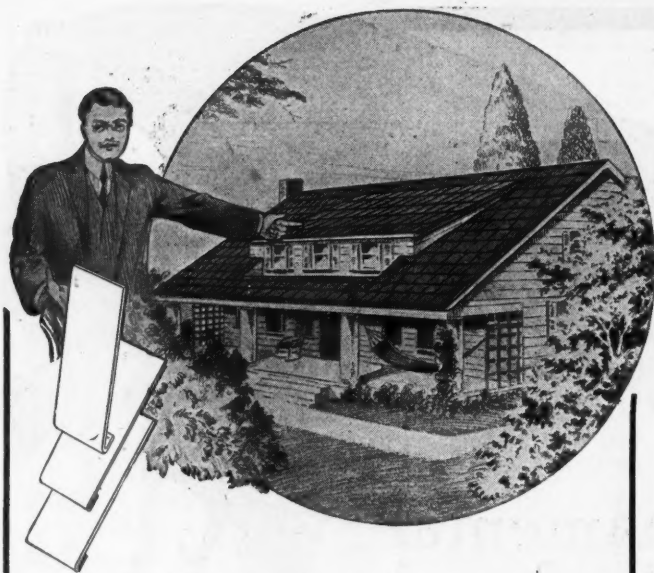
Birmingham, Ala.; Cincinnati, Ohio;

San Francisco, Cal.; Kansas City, Mo.;

New York City, N. Y.

CHICAGO, ILLINOIS





A Roof to Be Proud Of

A Rex-tile roof means satisfaction—for the carpenter and builder because it is easy to lay and will never cause complaints—for the house-owner because of its distinctive appearance and durability.

Rex-tile Shingles are handsomer than wooden shingles, slate or tile, economical and will wear indefinitely.

Absolutely water and wind-proof—fastened at the butt-end, and folded back over the nails—can't curl, warp, nor leak.

Rex-tile

TRADE MARK

"The Scientific Shingle"

are fire-resisting and color-fast—no painting or staining necessary—the color is a part of the material. Easy and convenient to handle; a smooth, clean surface and light in weight.

No price-cutting competition if you use Rex-tile on your roofing jobs. An exclusive material, because the turn-under fold for nailing—at bottom—no flapping or warping—nails perfectly covered—is patented, therefore sold for only one price.

These shingles are being extensively advertised. Will you write for sample shingle, prices and full information?

Flintkote Manufacturing Co.

90 Pearl Street, Boston, Mass.

67 Beaver St., New York

659 Peoples' Gas Bldg., Chicago, Ill.

Also manufacturers of Paradux—a waterproof canvas covering for all surfaces on which walking will be done—such as sleeping porches, piazza roofs, roof gardens, balcony roofs, boat decks, etc. Easier to lay than tin or metal—far more durable—requires no special preparation of the surface to be covered. Can be painted any color desired.

that all dust, smoke and gases which have to pass up through the flames are transformed immediately into clean live usable heat.

Another wonderful advance found in the New-Feed Under-feed is the simple method of first feeding the coal supply into the hopper or feed cylinder. This is accomplished by raising each shovelful of coal only a few inches from the floor. The large ash-pit door enables the cylinder to be easily and quickly filled without loss of coal, time or temper. A feature of the Underfeed is that by its use a saving in coal bills of one-half to two-thirds is guaranteed.

The New-Feed burns any size of coal, from soft coal slack and pea or buckwheat anthracite up. And cheaper grades of coal are burned just as cleanly and effectively as the most expensive grades—and without any smoke, dust or gases. Ashes, which have to be removed but twice a week, are clean and white—no partly burnt coals—no clinkers—and no soot.

All in all, the New-Feed marks a wonderful advance in heating systems. It is a heater that can be recommended and installed with every assurance of comfort, saving and satisfaction. Since it is adapted to warm air, steam, or hot water its versatility lends itself to any new building requirement as well as to the installation of new heating equipment in old buildings.



Acetylene for House and Barn Lighting

For an acetylene generator to be successful, it ought to be automatic—that is, it should only make gas when the lights or the range are in use. When the lights are turned on, the generator starts and when they are turned off the generator stops making gas. Also the generator should have a fair capacity so that it will not have to be filled very often. It also must have a simple mechanism so that there is no danger of its getting out of order.

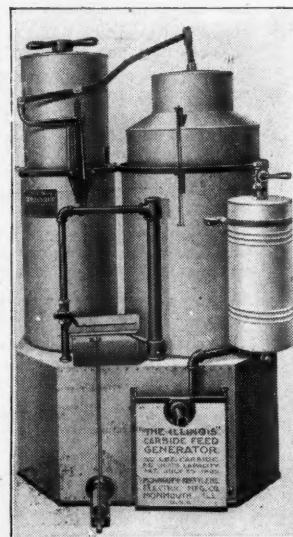
The "Illinois" system has all these features and is designed to insure absolute safety and maximum convenience. The illustration shows the compact and simple generator that is used.

The carbide is held in a hopper that is 30 inches above the water so that there is no danger of slacking due to the proximity of the generating water. The amount of carbide that is dropped is regulated for each generator and the frequency of these charges depends on the amount of gas that is being used.

The pressure of the gas is controlled by a bell forming the upper part of the generator. This operates in a water seal. An inside blow-off seal is provided so that, if anything ever goes wrong with the machine and the gas pressure gets too high, the gas can escape through a vent pipe.

The gas goes through a filter which cleans it before going to the lights of the range.

A card addressed to the Monmouth Acetylene Electric Company, Department AB, Monmouth, Ill., will bring complete particulars of this lighting system.



Monmouth Acetylene Electric Co. Generator.



Residence of Mr. C. S. Buz, Harrisburg, Pa., Roofed with Ambler Asbestos "Century" Shingles. Architect, Mr. H. F. Conover, Washington, D. C.; Contractor, Mr. John Myers, Harrisburg, Pa.

Ambler Asbestos "Century" Shingles

The Rapidly Increasing Sale of This Artificial Roofing Slate is Its Best Recommendation

WHEN the practical property owner of today buys a roof, he demands something more than a mere roof covering. He weighs the claims of one roof against another and bases his decision upon hard facts and unassailable evidence.

He demands—PERMANENCE and PROTECTION—

PERMANENCE because he wants a roof that carries no cost beyond the first cost. A roof that never requires painting or patching or repairing. He demands a roof that is practically wearproof and he gets it only in Ambler Asbestos "Century" Shingles.

PROTECTION because he wants a roof that is absolutely FIRE—WIND—RAIN and weatherproof. He wants a roof that will afford permanent protection and will stand up under

any sudden and violent climatic changes. Consequently he demands

Ambler Asbestos "Century" Shingles
"The Roof Everlasting"

Because of these qualities—and because of the fact that Ambler Asbestos "Century" Shingles have demonstrated these qualities in some 50,000 instances—their popularity is increasing accordingly.

HOW MUCH OF THIS BUSINESS ARE YOU GETTING? Are you profiting by the Efficiency First tendency all over the country? Are you cashing in on the advertising we are doing and the intensive sales work that is getting Ambler Asbestos "Century" Shingles into every community?

Are you getting your share of this business like hundreds of other contractors? There is a good profit in it for you; we can tell you how to get it. Write us today for the facts. We will furnish you with terms, trade prices and samples of Ambler Asbestos "Century" Shingles.

Keasbey & Mattison Company, Factors
Department B., :: :: :: Ambler, Pennsylvania

BRANCH OFFICES IN THE PRINCIPAL CITIES OF THE UNITED STATES

"The Complete Line of Best Products"

The above name is the title of a new pamphlet that has been issued by the Trussed Concrete Steel Company, giving a brief summary of their metal building products.

Descriptions are given of the various types and sizes of "Hy-Rib" and the kind of construction for which each size is particularly adapted. The types of "Rib Lath" and also "Diamond Lath" with their uses are enumerated.

The different pressed steel shapes used in the so-called "metal lumber" construction are shown together with a brief description. Illustrations of partitions and walls constructed of pressed steel channels and "Hy-Rib," which are to be covered with plaster, are given. Examples are shown of both ordinary partitions and hollow walls.

Two coat plaster work on "Hy-Rib" and "Rib Lath" ceilings is described and also practical installations are shown of "Hy-Rib" concrete roofs and floors built without forms.

Copies of this pamphlet can be had by addressing Dept. H-44, Trussed Concrete Steel Co., Youngstown, Ohio.



Sand Offers 28 Inch Aluminum Level

J. Sand & Sons, Detroit, Mich., manufacturers since 1895 of the famous Sand's plumbs and levels, and originators of the aluminum level, announce their new No. 28, 28" aluminum level. This is a level of the same type as their No. 30, 30", which is well known to carpenters and builders. The new level fills a long felt want in a size between 24 and 30 inches, and will be equally as popular as their 30" size. The same features are retained as in the 30", having four plumbs and two levels (reversible, works either end or edge up). It can be used high or low, up or down, no matter how it is picked up—is always

in correct position for use. The two center levels can be used to level work in the ordinary way by using bottom edge, or the top edge can be used under the work to level ceilings, beams, girders, etc. This is handy, convenient and saves time, and on account of the original designed frame it is easily handled.

They are light, strong, non-rusting and proof against warp. All spirit glasses have the wire bands instead of



Sand & Sons 30-Inch Level.

the indelible lines that are cut in the spirit glasses. Sand's spirit glasses are covered by plate glass which makes these important parts dust, dirt and waterproof. A circular can be had on request from the company fully describing this new item. Their address is 1023-25 Rivard St., Detroit.



Re-Roofing Week To Boost Orders

ASPHALT SHINGLE MAKERS' COMBINED ADVERTISING TO DEVELOP MORE RE-ROOFING BUSINESS.

There are probably ten roofs within a block of your home that need to be repaired or re-roofed. Each owner is probably allowing the leaky condition to go on simply because no one makes a determined effort to sell him a new roof. This is just an example of the business, in every city and town, that is waiting to be secured by the proper amount of effort. There is enough business right here, just in re-roofing leaky roofs, to make a tidy amount of work for every carpenter and contractor.

This is the shrewd feature back of the plan to advertise a National Re-Roofing Week which the Asphalt

"Insisting on Ceresit"

"Referring to the work done for us last June at the Lafayette Theater in waterproofing pit for our Style 'L' Wurlitzer Instrument, would say that this has given entire satisfaction, even to the extent of not forming any sweat in damp weather."

"This is all the more remarkable on account of the conditions under which the work was performed. The pit was built out with water, in fact, you will remember we pumped out over ten thousand gallons of water during construction."

"Since the completion of the job there has not been a single drop of water in the pit and we are insisting on CERESIT in the construction of every pit before installing an instrument."—RUDOLPH WURLITZER CO.

Ceresit in the "Movies"

Ceresit Waterproofing Compound is the greatest performer of its kind. Charley Chaplin can't compare with it for making you laugh with delight, satisfaction, *supreme content*. Its wonderful results in making basements and cellars dry—cisterns and silos water-tight—all kinds of concrete, cement and stucco work absolutely waterproof—are real, not "reel."

And it's a continuous show—a permanent credit to the good judgment of the builder who suggested its use.

Only one act—writing for literature, illustrations, engineering advice, etc.—will be a "free show" that will mean dollars and cents to you.

No waiting—no delay—
write today!

Ceresit Waterproofing Co.
910 Westminster Bldg.
Chicago

Waterproofing Compound

"Every Roof is my Roof"

"That's a fact. Every NEPONSET Roof in my town is *my* roof. A few people don't even know the name of the shingles, but they *do* know that *I* laid them. To hear them talk you'd think that *I made* the shingles!"



NEPONSET Shingles

PATENTED

have meant a lot of new business for me — business I never would have got, and yet I'm laying just as many wooden shingle roofs as ever!

"These are the only *built-up* shingles I know of — durable, attractive and fire protecting. Easy and economical to lay."

The same materials are used in **Neponset** Shingles as in the well known **PAROID** Roofing, also used in **Neponset** Proslate the highest grade colored ready roofing ever made **Neponset** Wall Board, **Neponset** Waterproof Building Paper and **Neponset** Floor Covering are other well known **Neponset** products

Bird & Son, Department C, East Walpole, Mass.

Please send me a sample of the NEPONSET Shingle. This does not obligate me in any way whatever. Also send copy of your booklet "Repairing and Building."



Name.....

Address.....

COUPON

COUPON



Interior effects possible with the use of North Carolina Pine.

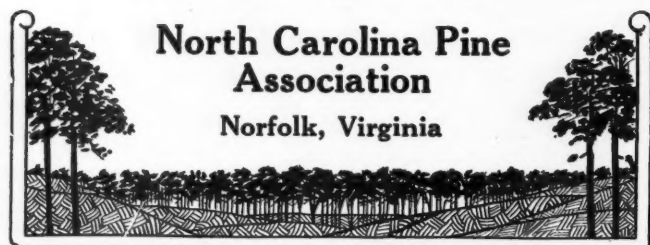
Keeps Down Investment

If an expensive brick structure is specified, the owner can still use North Carolina Pine—for interiors, for porches, for outside trim and for yard ornamentation. With it you can obtain the effects of genuine hardwood finishes without the attendant expense.

North Carolina Pine is not "Yellow Pine," but is softer and firmer in texture.

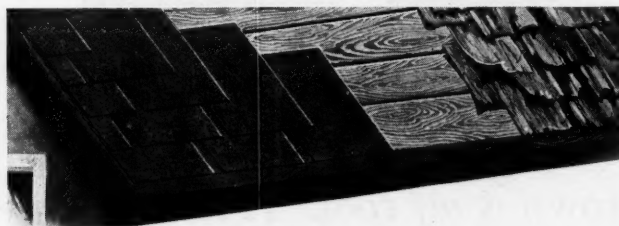
Architects' and Builders' Reference Book FREE

Prepared in convenient form for filing. Describes the advantages of North Carolina Pine. Specimen panels on request. Write for it.



Shingle manufacturers are carrying out. They realize the large volume of re-roofing business that is just waiting to be obtained, if someone leads the way. They know that every carpenter, every contractor and every roofer would like a share of this business. And through their advertising and their concerted action, they are helping the live contractors to get it.

They are advertising "National Re-Roofing Week—October 4th to 9th" in the magazines, farm papers, etc. The advertisements urge home owners to re-roof their homes, and permanently stop leaks by using asphalt



Asphalt Shingles for Re-Roofing.

shingles. Each advertisement gives facts about asphalt shingles that are very interesting to an owner who has been bothered with leaks and expensive repairs or who fears the fire danger of ordinary roofings.

With a wide spread advertising of this kind as an aid, it is well worth while for every carpenter and contractor to make a definite campaign for as much re-roofing business as can be obtained. A letter mailed to owners whose houses are known to be in need of repairs should develop many orders, particularly if the contractor mentions asphalt shingles so as to tie up with this advertising. A number of personal calls upon likely prospects should yield excellent returns. And telephone calls to a good list of possible customers would undoubtedly be very effective.

The profits in laying asphalt shingles are larger because there are fewer of them needed to cover a given space on the roof. This means fewer to handle and greater speed in applying. Frequently, 25 per cent of the labor time, or even much more, can be saved, which, of course, is extra profit. Then there is always the value of having the customer better satisfied with this roofing that has a beautiful appearance, in such handsome coloring, and that is sold for a price no greater than a common roofing.

The whole plan for Re-Roofing Week, and the advertising which it is a part, is conducted by the Asphalt Shingle Publicity Bureau, which is supported by the leading manufacturers of asphalt shingles. They know that by co-operating in their advertising they can teach the public, in the quickest and broadest way, the great superiority of asphalt shingles. And they realize that in this way they can best aid the contractor in soliciting new business.

When a contractor uses asphalt shingles, either for new buildings or on a re-roofing job, he is laying a roofing that will permanently please that particular home owner. "The Roof That Stays Young" is about as catchy and truthful a slogan as could be chosen to advertise asphalt shingles, for they are noted for their absence of repairs and their long life. Naturally, this makes them well liked by the thrifty home owner, who willingly gives credit to the contractor who suggested their use, and who applied them.

Here is a ready made opportunity to get business, a helpful and vigorous advertising to back your efforts, and a splendidly efficient product to sell. And right now is the time to get started.

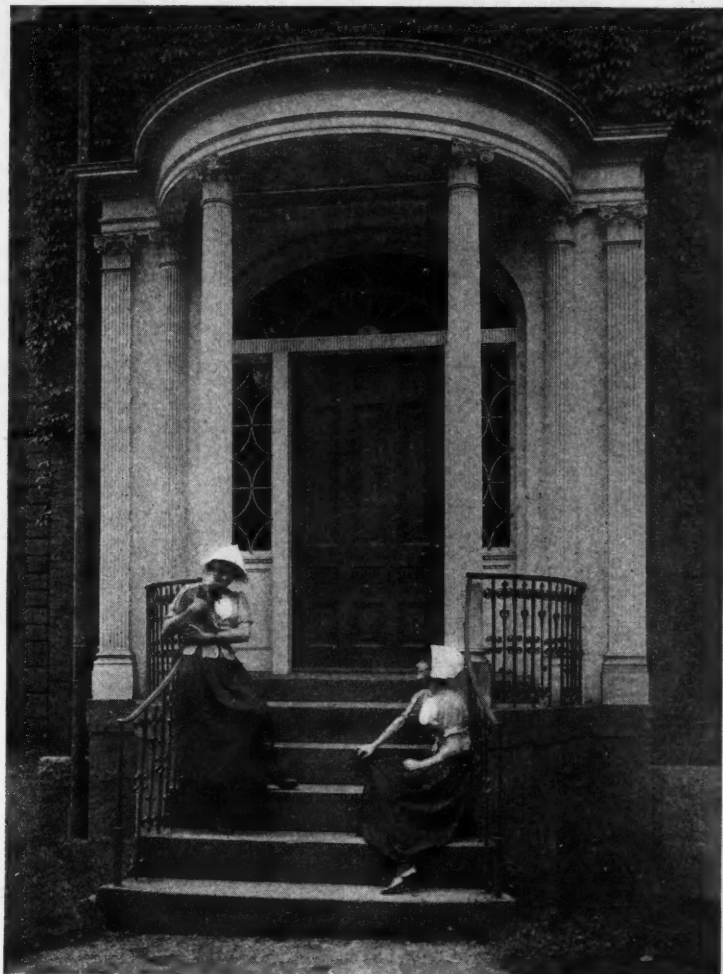


Photo by Mary H. Northend, Salem, Mass.

TUCKER-RICE PORTICO

at Salem, Massachusetts.
Built in 1807 of White Pine.
Samuel McIntire, Architect.

For over one hundred years this famous portico—considered the best of the many masterpieces of Samuel McIntire, one of the greatest architectural designers America has produced—has stood exposed to the weather. It is today as perfect as the day it was completed, thanks to the enduring qualities of White Pine.

WE need hardly remind carpenters that in exposed mortised doors, in close-fitted mitres, or in delicately moulded, carved and columned porticos White Pine joints hold close—not for a year or a lifetime, but for centuries. For these purposes no other wood has ever been found which gives such lasting service as

WHITE PINE

Despite an impression that it is scarce there is still plenty of "Good Old White Pine," in all grades, and it can be purchased in all markets at reasonable prices, when considering its value as a structural wood.

If the lumber dealers supplying the materials for those for whom you are building are at any time unable to furnish it, we would appreciate the opportunity of being helpful to you in securing it.

A FREE MAGAZINE FOR CONTRACTORS

We are now publishing a bi-monthly architectural magazine, every issue of which will be full of valuable and helpful information for contractors and builders. If you would like this magazine, write us and we will be pleased to place your name on our mailing list.

Representing
The Northern Pine Manufacturers'
Association of Minnesota, Wisconsin
and Michigan, and The Associated
White Pine Manufacturers of Idaho

*Address, WHITE PINE BUREAU,
2035 Merchants Bank Building, St. Paul, Minn.*

No Heat is Wasted

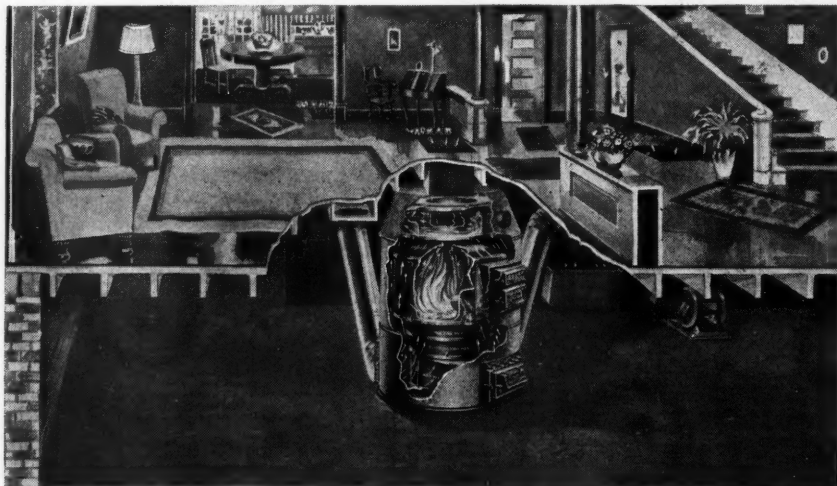
Short, direct radiation of air in a furnace results in rapid circulation and a saving of heat, as the air is not overheated and there are no long pipes that have to be warmed. Such an arrangement is accomplished in Bovee's Central Heating System.

One large hot air register is placed directly over the furnace with two cold air returns from different rooms, or one return in a small house. Such an arrangement

possible difference in temperature. In their "Economy" and "Horizontal" furnaces, in connection with the central heating system, the air rises directly through a very short pipe so that a quick circulation of air, with a gently rising temperature, is secured.

The furnace is shipped complete so that it is easy to install. All the connections with the hot air and cold air registers are ready to be set up. Each of the cold air pipes is 6 feet long and has a connection at one end to fasten to a cold air box that is placed under the joists.

Full details with illustrations showing house cross sections with the furnace installed can be secured from the Bovee Furnace Works, 50 8th St., Waterloo, Iowa.



Part of House and of Furnace Cut Away to Show Construction and Installation of Bovee Central Heating System.

requires very little head room and can be installed in houses that were not built originally for furnace heating.

The object of a heating plant, say the manufacturers, is to secure the most perfect circulation of air with the least

mitre box. The boxes can be swung through almost a complete circle, giving any angle that is ever wanted. You don't have to know anything about degrees. When you have any odd corner, just set the backs to that bevel, and

An Automatic Mitre Box

Did you ever want to get the true center cut of a corner when you didn't know how many degrees the corner was out of square? Or did you ever want to get the true radius cut in circle work when you didn't know the radius of the circle? The Kawalle Automatic Mitre Box makes this kind of cut without any figuring on the part of the carpenter.

One of the illustrations shows the remarkable range of angles possible in this mitre box. The boxes can be swung through almost a complete circle, giving any angle that is ever wanted. You don't have to know anything about degrees. When you have any odd corner, just set the backs to that bevel, and

STANDARDIZED PRODUCTS

Leading contractors and builders throughout the country, know that Standard Varnish Works' products represent the utmost in quality in varnishes, stains and enamels.

For forty years we have striven to perfect finishing materials that would be absolutely dependable, and now offer

ELASTICA FINISH No. 1—An excellent varnish for exterior work.

ELASTICA FINISH No. 2—The highest grade varnish for interior work.

ELASTICA FLOOR FINISH—The perfect varnish for floors.

FLATTINE CABINET FINISH—For a Mission Finish.

KLEARTONE FLAT VARNISH—For a Rubbed Effect.

KLEARTONE STAINS—24 beautiful, permanent shades.

SATINETTE WHITE ENAMEL—The White Enamel that is White.

STANDARD VARNISH WORKS

New York

Chicago

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San Francisco

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Paris

Brussels

Melbourne

International Varnish Co., Limited, Toronto, Canada



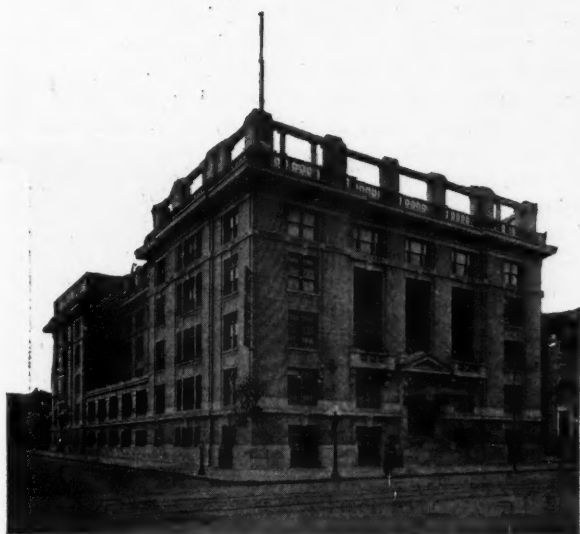
WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

MIDLAND TERRA COTTA

ON THESE
BUILDINGS



☐ Above is Roseland Safety Deposit Co.'s Building, in Roseland, Illinois. William G. Carnegie, Architect. Entire elevation of MIDLAND cream enamel.



☐ Structure to left is Y. W. C. A. Building, in Dayton, Ohio. Schenck & Williams, Architects. From grade line up, all trim is MIDLAND standard terra cotta.

MIDLAND TERRA COTTA CO.

1515 LUMBER EXCHANGE BUILDING

CHICAGO, ILLINOIS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



Five Good ALPHA Reasons

1 Inspections are made hourly in all ALPHA Portland Cement plants, no matter whether the purchaser of the cement is to make his own tests or not.

2 ALPHA chemists have always been real bosses so far as their decisions have to do with the improving and maintaining of quality. The ALPHA Cement sold today is the result of 24 years of this policy.

3 The burning and grinding of ALPHA Cement clinker is done under the supervision of chemical and efficiency engineers. In composition, fineness and tensile strength

ALPHA

The Guaranteed Portland Cement—The High-Water Mark of Quality is warranted to more than meet all standard requirements.

4 ALPHA warehouses have a storage capacity of 2,000,000 barrels, insuring the proper aging of all ALPHA Cement before shipment.

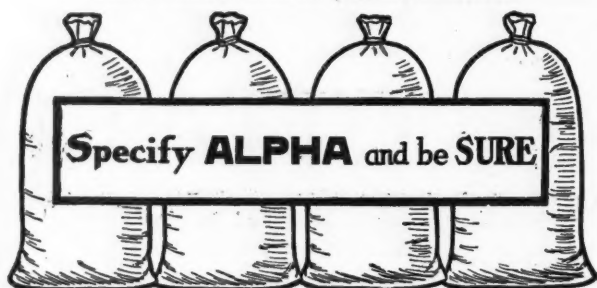
5 Six great plants on six trunk line railroads give unusual facilities for prompt deliveries. Eight branch offices at your service.

Send for the ALPHA Book No. 16, giving valuable information about cement and concrete work generally. This illustrated book tells how to do stucco work, how to build concrete barns, silos, ice-houses, and other small concrete buildings, foundations, walks, tanks, storage cellars, steps, etc.

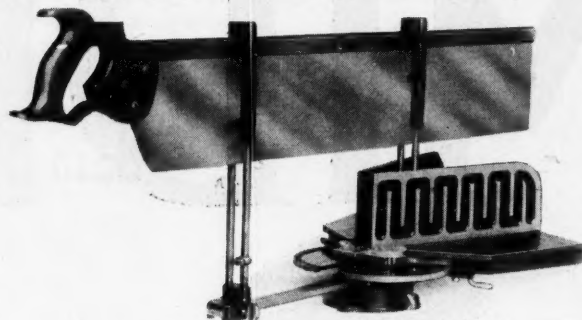
ALPHA PORTLAND CEMENT CO.

General Offices: EASTON, PA.

Sales Offices: New York, Philadelphia, Pittsburgh, Baltimore, Chicago, Boston, Buffalo, Savannah.

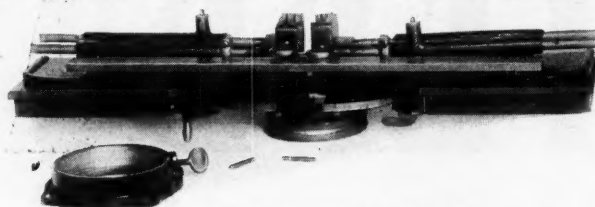


it will give the true cuts of that corner. To get the radius cut of any circle place the circular piece against the pins and pull the tables forward until both backs touch the section. The saw will then give a true radius cut.



Kawalle Box Set for Wide Angle Work.

The second illustration shows the mitre box as folded together to place in a tool case. The backs are released by loosening the thumb screw and the saw guides are



Kawalle Box Folded for Packing.

removed by loosening the screw that holds them. Two screws release the guide arm and when they are tightened up the arm is automatically squared again.

Complete particulars of the many time and trouble-saving features of this mitre box can be obtained from the Kawalle Automatic Mitre Box Company, Manitowoc, Wis.



Mechanic's Pressed Steel Work Cabinets

The line of pressed steel work cabinets which the Berger Mfg. Co., of Canton, Ohio, has just put on the market provides secure and convenient storage facilities for special dies, tools, blueprints, etc.

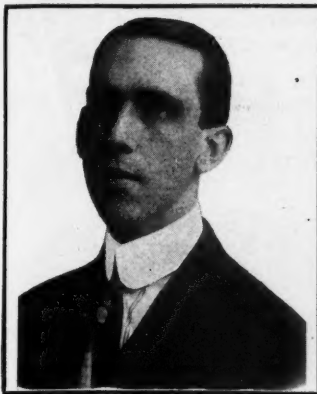
Substantially constructed of formed sheet steel, each cabinet is equipped with an especially solid and rigid top which can be used for laying out work or handling heavy parts. The height of these cabinets is such that they fit readily under the mechanic's machine or at its end, where they are out of the way.

As shown in the accompanying illustration, each cabinet is divided into two compartments with individual locking facilities. A mechanic and his helper can share one cabinet between them, each occupying one compartment. This feature is particularly valuable also where day and night shifts are employed and one man operates the machine in the day time and the other at night.

These pressed steel work cabinets form a valuable adjunct to Berger's well known sectional steel bins and shelving construction, steel skeleton racks, tote boxes, tool trays, and other shop accessories of tried and proved merit.



Mr. Charles
P. Rawson



He was a "Chicago Tech" Student

*and is Now One of the Foremost
Authorities on Building Construction*

The Same Training is Open to YOU!

Mr. Rawson is one among hundreds—thousands of men who owe part or all of their technical training to this school. This training is open to you. This is your opportunity to develop your latent talent—to give your energy and ambition full scope.

Hundreds of men in the building trades are studying in the day and evening schools of this old established College under the expert teaching of Chicago's foremost architects, estimators, contractors, etc. If you cannot attend these classes you can

STUDY AT HOME

By Our New, Quick, Easy Plan

BUILDERS' COURSE

**For Carpenters, Builders, Contractors and Other
Men in the Building Lines**

PLAN READING, ESTIMATING, ETC.

Architectural Drawing and General Contracting

There is no other similar correspondence course in America that has a resident College of national reputation back of it nor a faculty of active experts actually engaged in architectural and engineering work. No other school gives you live, up-to-date blue print plans of work in actual construction. This is a practical course for practical men. It covers thoroughly essential points that many students neglect or overlook. Practical training, not book knowledge, is what you want—it's what we give. "Chicago Tech" students work with blue print plans of buildings in course of construction and they are taught by architects, contractors, superintendents, etc.—men actually engaged in real work—big work. Our students have access to architectural and structural steel plans of buildings constructed in Chicago, New York and other large cities. Show the stuff YOU are made of; grasp this opportunity—do it today. Never mind the cost, it's small, anyway. We want the earnest, ambitious men in the building lines.

tendents, etc.—men actually engaged in real work—big work. Our students have access to architectural and structural steel plans of buildings constructed in Chicago, New York and other large cities. Show the stuff YOU are made of; grasp this opportunity—do it today. Never mind the cost, it's small, anyway. We want the earnest, ambitious men in the building lines.

CHICAGO TECHNICAL COLLEGE, 1017 Lake View Bldg., Chicago, Ill., U. S. A.

\$15.00

**Outfit and Blue
Print Plans**

FREE

This elegant \$15 outfit and all blue print plans furnished FREE with instructions in Plan Reading, Estimating and Drawing.

Take advantage of this splendid offer. Act now before it is too late. **Mark and mail the coupon today.**



CHICAGO TECHNICAL COLLEGE,

1017 Lake View Bldg., Chicago, Ill., U. S. A.

Mark "X" opposite work in which you are interested. Without obligation on you we will send full information.

- ☐ Architectural Drafting
- ☐ Builders' Course
- ☐ Estimating
- ☐ Plan Reading
- ☐ House Planning
- ☐ General Contracting

- ☐ Building Superintendence
- ☐ Structural Steel Drafting
- ☐ Sheet Metal Drafting
- ☐ Reinforced Concrete
- ☐ Machine Drafting
- ☐ Surveying

Name.....

Address.....

Town..... State.....

College or Home-Study Course.....

Don't Waste the Space

Here is shown the new Louden garage door hanger which has many desirable features. It practically eliminates all the waste space in the garage.



A Louden Garage Door Runs in Close to the Corner—No Wasted Space.

The door is made in three sections as shown and operates on a curved track so that only a very small part of the corner is cut off. The makers say that it is easy to operate, cannot get off the track, and is not bothered by the wind.

Another unique feature of the door is shown in one of the smaller illustrations. One section is made so that it can be opened without disturbing the rest of the door.

This equipment gives a door that is as wide as the garage and does not use up valuable room as is the case when the doors open inward, and is not troubled with the wind as when the doors open outward. The space in the garage that is ordinarily wasted, can be utilized as a workshop, or for any other purpose desired.

Any carpenter can make and hang the door, and all the hardware that

is required is furnished by the Louden Machinery Company. The equipment is made for four sizes of doors 6-foot, 8-foot, 10-foot and 12-foot. The prices for this equipment are extremely low, as shown in their advertisement in another part of this issue.



When You Want to Enter the Garage, it is Necessary to Open Only One Section of the Door.

Going to Build, Remodel or Repair?

Get these TWO valuable books FREE

SAVE \$5 to \$500 on Every Order for building material. Our big Catalog tells you how. It shows 8,000 PRICE BARGAINS and contains illustrations, prices and descriptions of every conceivable article that enters

into the construction of a building. It tells you how to buy lumber, flooring, roofing, doors, windows, mouldings, cabinet work, colonnades, porchwork, hardware, tile, paints, wall board, metal work, plumbing and heating equipment, water supply outfits and thousands of building specialties and interior fittings at WHOLE-SALE prices. Everything is sold direct to YOU and YOU save all middlemen's profits.

This book is more than a mere Catalog. It is an encyclopedia of building information and will prove of the utmost value to you every day in the year. Write for a copy today. It is sent absolutely free, postage prepaid, and places you under no obligation whatever.

Also ask for our Plan Book of Modern Homes. Every carpenter and contractor will find this superbly illustrated Plan Book an

invaluable aid in securing more work and a key that opens the way to greater profits. You can show your customers newer and better designs of modern homes, bungalows, handsome suburban residences, town houses, practical country homes and barns. You can also learn from this book how to secure

architect's blue print plans and specifications without one cent of cost. We shall gladly send you a copy of this book free, postage prepaid. Ask for it.

Free Estimate. Send us your lumber and millwork bill for our FREE ESTIMATE. Let us quote prices including all freight charges direct to your railroad station, so that you can tell in actual dollars and cents what we can save for you on your present requirements. This service is FREE.

**WRITE FOR OUR
FREE ESTIMATE**
*Don't Buy Until You
Get Our Prices*

Storm Sash and Storm Doors are among the hundreds of seasonable articles you can buy here at wholesale prices. No matter whether you want one small sash or a solid carload of windows you will find them shown in our catalog at money saving prices. Write for your copy of the Catalog today and tell us if you wish a Plan Book also. Both are free.

CHICAGO MILLWORK SUPPLY CO.
AMERICA'S GREATEST SASH AND DOOR HOUSE

1422 West 37th Street

CHICAGO, ILLINOIS

The National Defense against Building Decay



CUT NAILS

Here's what Uncle Sam's Army Engineers discovered about CUT NAILS, when, in competition with other nails, they conducted tests of all lengths, in all kinds of woods, under all conditions: they found CUT NAILS possess

47% to 135% Greater Holding Power

Now, Mr. Builder, isn't it up to you to use the better nails if they cost no more than inferior nails in the interests of your customers as well as yourself? But Greater Holding Power is not their only point of superiority. They are far more durable being practically immune from rust and will not split the wood when driven properly. CUT NAILS are best for all outside work, weather boarding, fences, shingle or slate roofs, flooring, etc., wherever a nail is wanted to hold wood to wood firmly.

Now, Mr. Builder, try them on your next job, go to your Dealer and don't simply say 10-penny nails, but say CUT NAILS. It'll pay. Or if your Dealer isn't "Hep" to these better nails, write to the nearest manufacturer listed below and he'll send you FREE Samples and see that you are supplied.

CUT NAIL MANUFACTURERS

La Belle Iron Works
Steubenville, Ohio
Van Alen & Co., E. G. Van Alen
Northumberland, Pa.
E. & G. Brooke Iron Co.
Birdsboro, Pa.

Williamsport Iron & Nail Co.
Williamsport, Pa.
Geo. B. Lessig Co.
Pottstown, Penna.
Tremont Nail Company
West Wareham, Mass.

Use them on your next
**JOB - "SAFETY
FIRST"**

HERRINGBONE Lath is a rigid metal lath. On studding alone Herringbone will save you 25% over the wishy-washy kind. Herringbone has backbone. It does not give under the trowel. There are no thick and thin spots.

A fire-resisting residence, that's free from cracks and splotches.



Herringbone, made of rust-resisting Armo Iron, was used in the Copley Plaza at Boston.

Herringbone Rigid Metal Lath

saves stucco and plaster. Goes in place rapidly. Comes painted—cannot rust. Look for the job where Herringbone is specified. It means a good job easily done. Herringbone Book free. Send for it.

The General Fireproofing Company

6100 Logan Ave.

Trade Mark

Youngstown Ohio

Makers of Self-Sentering—the combined reinforcing and centering.



Reg. U. S. Pat. Off.

This company also make the high grade Loudon Cupola and ventilator which has been perfected after years of testing. They claim remarkable results for their ventilator under all kinds of working conditions.

All contractors and builders that do any barn building of any kind should write for the "Louden Barn Bulletin." This is a mighty interesting and instructive paper that is being issued now and then by the Loudon Machinery Company. It contains much valuable information, both with regard to stock and the buildings to keep them in. Contractors will be placed on the mailing list by writing to this company at 5504 Fourth Street, Fairfield, Iowa. Do it now, as it will be your own loss if you miss a copy.



The Door will Hang True and Close.



H. V. Jamison Honored

Mr. H. V. Jamison, Advertising Manager of American Sheet and Tin Plate Company, Pittsburgh, has been awarded a gold medal by the Panama-Pacific International Exposition Society for valuable services rendered in the installation of the large exhibits of the United States Steel Corporation and its subsidiary companies.

When the Steel Corporation decided to make an extensive exhibit at San Francisco, Mr. Jamison was appointed Director of Exhibits. The results were so successful that the Steel Corporation and its subsidiaries were accorded the Grand Prize for the excellence of their exhibits and Mr. Jamison was awarded a gold medal in recognition of his services.



H. V. Jamison.

The American Sheet and Tin Plate Company received the Grand Prize for the superiority of its Sheet and Tin Mill products, the greatest merit being recognized in the following products as representing the highest development of the art:

Keystone Copper Bearing Black and Galvanized Sheets.
Copper Bearing Open Hearth Terne Plates.
Apollo Best Bloom Galvanized Sheets.
Coke and Charcoal Tin Plates.
Wood's Patent Planished Sheet Iron.

\$1500.00 In One Month By This Man

THAT'S what Mr. Eakin made with a "Long" Crispette Machine. Paid his last \$10.00 for rent of a store window; at the end of 30 days he had \$1,500.00 in the bank. Today he is independent. A Crispette Machine and Crispettes did it. Perrine, Cal., took in \$380.00 in one day. Every nickel brought him also 4 cents profit. What are you going to make of the future—just barely earn a living—keep wishing for something better to turn up? **DON'T DO IT.**



I Am Looking for Other Men Who Want a Business of Their Own

LISTEN! Take that money you have saved up against the day of opportunity, invest it in a Long Popcorn Crispette Machine, and make fortune smile on you—build up a big paying business.

Think of the fortunes made in 5c pieces—street cars, moving picture shows, 5c and 10c stores! Everybody will spend a nickel. Everybody likes Crispettes—children, parents, old folks. You don't need any experience. You can start anywhere—in a store window, a small store room where the rent is cheap, or the kitchen of your home.

The Crispette Machine and Long's secret formula to the man of limited means is a safe and strong—a sure way to independence and fortune. Make money right from the start.

ALMOST 400 PER CENT PROFIT

Every 20 cents spent returns you \$1.00 cash — **NOT THEORY**, not guesswork, not imagination, but the actual, bona-fide proven record of profits of Crispette producers from Coney Island to Oregon, from Canada to Argentine Republic.

The world today hungers for the "different," and it pays millions of dollars every year to satisfy this desire. Why not be the one to satisfy this demand in your locality and reap your share of the golden harvest now ripe and ready for you?

Come to Springfield at My Expense

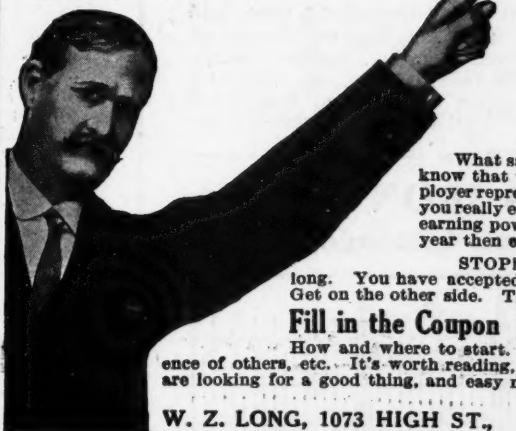
Up to a distance of 300 miles I'll pay your expenses if you buy a machine. Let me prove every word in this advertisement. No greater, better opportunity can be put up to you offering such **certainly of success**, producing the enormous, honest, legitimate profits, requiring such small investment, so light running expenses. Any man of ordinary intelligence, ambitious, progressive, energetic, who wants to get ahead in the world should make a Crispette Machine pay for itself in a few weeks.

**SEND FOR
FREE BOOK**

**Every nickel you take in nets you almost
Four Cents profit.**

I want to start you in the same business that made me wealthy.

—W. Z. LONG



What salary do you earn? What salary do you get? Stop a minute and consider. You know that what you receive from your employer represents but a small portion of what you really earn. Get on the other side! If your earning power amounts to thousands every year then earn it and keep it to yourself.

STOP! You have followed the rut too long. You have accepted only what others cared to give. Get on the other side. Take only what you want.

Fill in the Coupon

Send for free book "Dollars and Sense." It tells the whole story. How and where to start. How to succeed. Gives experience of others, etc. It's worth reading, even if you don't start. If you are looking for a good thing, and easy money, send today for this book.

Use the coupon →

W. Z. LONG, 1073 HIGH ST.,

SPRINGFIELD, OHIO



**\$100.00 A DAY MADE BY
THIS MACHINE**

There is room for one of these Crispette Machines in every city and town of 500 population in U. S.

The 5th Great Wonder of the World—The Famous Crispette Machine

Follow Carefully the Amazing Facts. ANSWER TO YOURSELF THESE PERTINENT QUESTIONS.

W. A. Phillips: "I started the 9th of last month and have cashed in up to date \$1435 with the season just starting. I thank the lucky stars I have taken hold of this business."

E. H. H., Penn., 12,000 rolls in two weeks, \$600.00; profits, nearly \$400.00. Feltmans' Pavilion, Coney Island, makes 500 pieces every 7¼ minutes; earns \$400.00 in ten hours. One man living 3,000 miles from Springfield bought an outfit and shortly after ordered another to come by express. Business was so good he could not wait to have the second machine shipped by freight.

W. Z. LONG CO., 1073 Springfield, Ohio.

Without any obligation at all, please send me free your book, "Dollars and Sense In The Crispette Business."

Name.....

Address.....

Steamship's Vibration Does Not Affect It

One of the latest applications of wall board is shown in a handsome booklet that has recently been issued entitled "Compo-Board Aboard Ship." Unusually good illustrations are shown of the interior walls and ceilings as finished in various styles with "Compo-Board."

The following reasons are given in the booklet for selecting "Compo-Board" for this purpose.

It has great strength and durability. It will not crack, warp, buckle, or shrink. It is not marred by knocks from furniture and other articles, which is very essential on board a ship. Cold, heat, and fire do not affect it readily and it is moisture proof. It can be adapted to any scheme of decoration, with or without panels and some of the many beautiful and original effects that can be attained are shown by the photographs of the boat interiors.

The Northwestern Compo-Board Company says that this completes the tests on "Compo-Board" as it has stood the acid tests for all purposes on land, and now has proven satisfactory on the high seas. A copy of this booklet can be obtained by writing to this company at 5777 Lyndale Ave., No., Minneapolis, Minn.

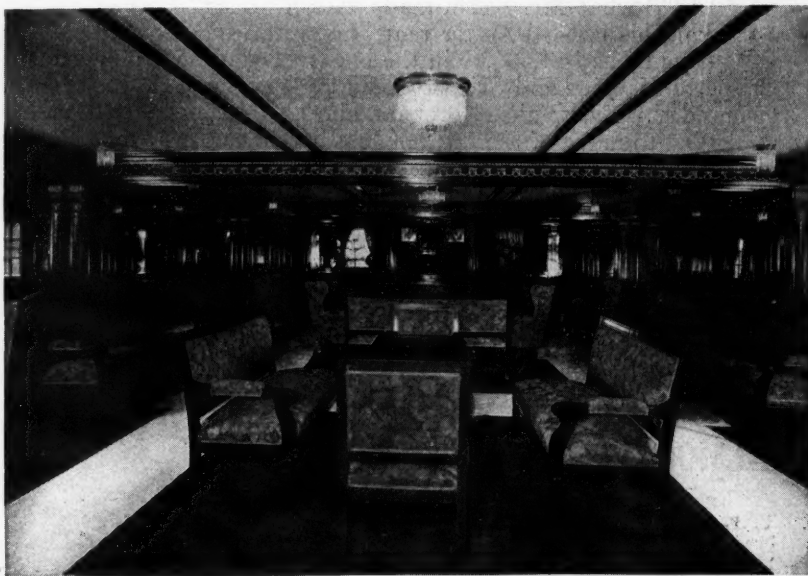
Kind to Rabbits

"Willie, did you tie that tin can to the dog's tail?"

"Yes, sir," replied the small boy. "I'm trying to do a kind act every day. The dog chases every rabbit he sees. I tied the can to him so that it will make a noise and warn the rabbit."

Dancing and Roller Skating Craze Increasing the Demand for Smooth Floors

If the increasing demand for resurfacing old floors and the building of new dance halls and roller skating pavilions has anything to do with the betterment of business conditions throughout the country we may look for much better times. Evidently the roller skating and the dance adherents are finding enough extra money to spend for their favorite pastimes, which indicates that they have good paying jobs to enable them to keep the halls and pavilions crowded.



Social Hall on Steamship Matsonia—Finish Thruout in "Compo Board."



FREE Our Large Catalogue

SEND IN THE COUPON

Builders' Wire and Iron Work

Largest Line — Lowest Prices

The BARBEE Line of Builders' Wire and Iron Work includes a complete line of Weather Vanes, Skylight Guards; a variety of designs in Window Guards and Grills, Plain and Ornamental Fencing and Gates, Sidewalk Grating, Stable Fixtures, Cast Iron Posts, Pipe Railings, Office Railings, Wickets, Partition Railings, etc. Radiator Guards, Step Railing, Steel Stairways, Fire-escapes and many other items. You'll find them all listed and illustrated in our large catalogue. We'll send you this book if you

MAIL IN THE COUPON

BARBEE WIRE AND IRON WORKS

174 N. Dearborn Street, Chicago, Ill.



TEAR OFF AND MAIL

BARBEE WIRE AND IRON WORKS

174 N. Dearborn Street, Chicago, Ill.

Gentlemen—I wish to see how I can save money on my Building Wire and Iron Work, so send me your large free Catalogue.

Name

Address

State

GOODELL-PRATT 1500 GOOD TOOLS



**No. 306
BENCH
GRINDER
and
LATHE**

Partial List of GOODELL-PRATT TOOLS

Hand Drills	Precision Tools
Breast Drills	Levels
Chain Drills	Hack Saws
Bench Drills	Screw Drivers

FOR the man who wants to do occasional odd jobs of light wood-turning, we have designed this lathe attachment for a bench grinder. With it you can handle all kinds of work up to 5 inches in diameter and 12 inches long. The grinder can be clamped to any ordinary table or work bench and the treadle adjusted to the right length. The bench grinder, from which the lathe attachment can be removed if desired, is a very high grade tool with machine cut gears guarded to prevent pinching the fingers or tearing the clothes.

The alundum wheel, which is made especially for **Goodell-Pratt** grinders, is 4 inches in diameter with a 1 inch face. Combined with the nut which holds the grinding wheel, is a spur center for the lathe. The tail stock has a spindle with a center at each end, so that it is reversible. The adjustable hand rest is extra long.

PRICE EACH, \$7.50

**Goodell-Pratt
Company**

Toolsmiths

**Greenfield, Massachusetts
U. S. A.**



Seven Sizes
\$950 to \$4350



There is a KisselKar Truck to Exactly Suit Your Needs

THE new line of KisselKar Trucks was designed to meet every haulage requirement.

There is one to fit *your* business—to exactly suit the peculiarities of your delivery problems.

No necessity to adjust your system to the truck—the truck will adjust itself to your system.

KISSELKAR TRUCKS

The New Series is Priced as Follows:

1000 lb. delivery	\$ 950
$\frac{3}{4}$ to 1 ton trucks	1500
1 to 1 $\frac{1}{2}$ ton truck	1750
1 $\frac{1}{2}$ to 2 ton truck	2100
2 $\frac{1}{2}$ to 3 ton truck	2750
3 $\frac{1}{2}$ to 4 ton truck	3350
6 ton truck	4350

Our new truck portfolio is ready with full specifications and details, besides hundreds of illustrations. It is sure to interest you—send for it to-day.

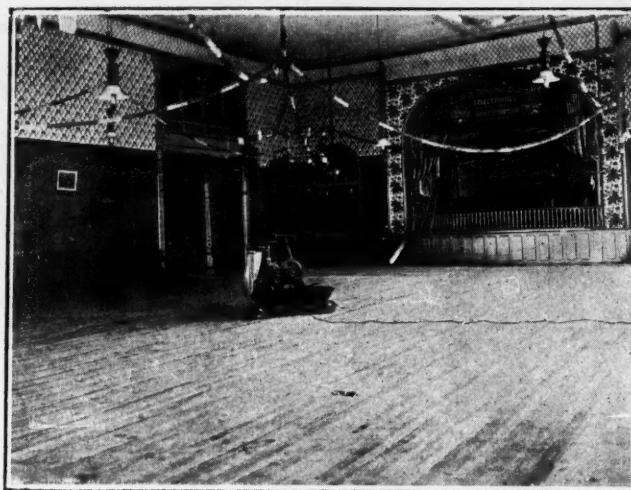
Kissel Motor Car Company

546 Kissel Avenue

Hartford, Wis.

New York, Boston, Chicago, St. Louis, Milwaukee, Minneapolis, St. Paul, Dallas, San Francisco, Los Angeles, Oakland, Cincinnati, Omaha, Cleveland, Detroit, Toledo, Columbus, Rochester, Buffalo, Baltimore, Pittsburgh, Duluth, Dayton, New Orleans, Nashville, Hartford, Conn.; New Haven, Troy, Norfolk, Providence, Marshalltown, Ia.; Madison, Montreal, Toronto, Calgary, Victoria, and three hundred other principal points in the United States and Canada.

The American Floor Surfacing Machine Co., of Toledo, Ohio, have had an unusual call for large surfacing machines to be used for surfacing floors of this kind. The "Big American" shown herewith is the machine recommended by them for surfacing floors of large areas, where absolute uniformity and smoothness are required, such as in dance halls and roller skating rinks. Being equipped with two sanding rolls and self-propelled, the "Big American" makes



The Success of a Dance Hall Depends Largely on Smoothness of Floor.

an ideal machine for turning out a large amount of work and doing it in a most satisfactory manner. The operator stands on the machine and has full control, the machine moving at a rate of 35 feet per minute either forward or backward.

The manufacturers claim that this machine will do the same amount of work as thirty men and will pay for itself in a short time. The manufacturers issued a booklet a short time ago entitled "Surfacing Floors as a Business" which will be sent free to anyone interested in this kind of work.



New Waterproofed Wall Board

A new waterproofing that has been developed by the Plastergon Wall Board Company adds strength and stiffness to their wall board as well as waterproofing it. The change in appearance is very slight.

This company gives the following explanation of the advantages of waterproofing:

The main reason for waterproofing is to overcome the greatest of all objections—taking up dampness and giving it off, causing the board to warp and pull away from the nails. A damp-proofing would be sufficient in some cases, but many require a waterproofing so the company decided to make "Plastergon" so that it would have plenty of protection under all conditions.

The waterproofing also acts as a sizing and the wall board can be decorated as soon as it is applied, without further attention. This frequently means a saving of from \$3.00 to \$5.00 per M. in labor.

Tests have been conducted for over a year with the wall board under various conditions and there has been absolutely no shrinkage. The wall board is hardened, stiffened, waterproofed, and sized, all in one operation.

The Plastergon Wall Board Company, 101 Fillmore Avenue, Tonawanda, N. Y., will be glad to furnish complete details of this new improvement for their wall board. Ask them for their booklet, "Plastergon Wall Board, Its Application and Decoration," and for sample of waterproofed "Plastergon."

Overland

TRADE MARK REG.

Delivery Cars

\$725 **A Highly Profitable** **\$750**
f. o. b. Toledo **Trade Developer** *f. o. b. Toledo*
Open Express *Panel Body*
Delivery Car *Delivery Car*

Other dealers are daily proving the promptness of motor transportation.

For today, more than ever before, continued success in the building trade depends largely upon the maintenance of satisfactory transportation facilities.

The Overland Delivery Car is just what you need to help you meet the strenuous competition you are up against.

The price of this car is astonishingly low. And the cost of operation is proportionately small.

It is ***cheaper than a horse and wagon to operate***—yet it does three times as much work. It will furnish the speed necessary to enable you to supervise your work personally—even though in widely separated districts. It will carry you, your men, tools and supplies, from job to job quickly and economically.

The famous 35-horsepower Overland motor has power in excess of anything you will ever require. It is smooth running and always dependable.

The Overland Delivery Car is electrically lighted and started. It has high tension magneto ignition, a revolving oil indicator, large tires and other advantages found on no other delivery car at this low price.

This substantial, highly efficient vehicle is not only saving money for many builders—it is ***making money*** for them.



Write today for a special delivery car catalog.
 Please address Dept. 255

"Made
 in
 U. S. A."

The Willys-Overland Company, Toledo, Ohio

Also Manufacturers of the Overland and Willys-Knight Pleasure Car

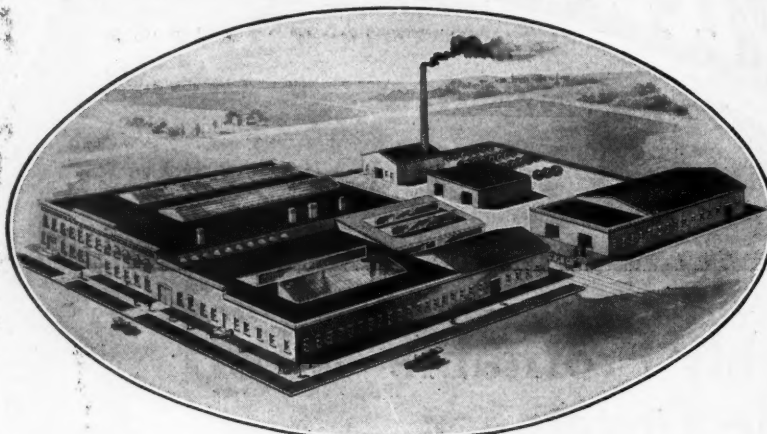


WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

American Cement Machine Co. Acquires Former Brick Plant

The story of the acquisition of the Keokuk plant of the Scott Madden Iron Company by the American Cement Machine Company might be entitled "Adding Insult to Injury."

It seems that the former company was engaged in



Birdseye of Enlarged Plant of Amer. Cement Mach. Co.

making clay brick machinery and blames cement for its downfall. Now the plant has been remodeled and is used for manufacturing concrete and cement machinery. Surely the spirit of the old plant must have turned over in its grave.

The American Cement Machine Company, Inc., 1006 Johnson Ave., Keokuk, Iowa, report that their business has increased 80 per cent this year over last year which has forced them to treble the capacity of their plant.

They are keeping up with their orders by the added use of the plant that is mentioned above. A large part of their business has resulted from the line of light pavers that has been brought out since the first of last January.

Extremely cheap power is available for this concern because of the proximity of the great Keokuk Dam with its enormous power development.



How to Save Coal

At this time of year the careful householder begins to look ahead towards the winter anxiously to calculate just how few tons of coal he can rub along with until the warm days come again.

Manufacturing plants have long ago recognized the necessity of economy in coal consumption, but the average household heating installation is usually innocent of any attempt in this direction.

Talking over the matter with the sales manager of one of the largest manufacturers of heating apparatus in the country, a few days ago, we asked him the point blank question: "About how much coal can I save in a winter by properly covering my pipes?" His answer came promptly:

"At least fifteen per cent, and probably more."

Now with coal at about five or six dollars a ton (and many of us pay even more), this is worth thinking about, because with a consumption of, say, ten tons for the winter the saving amounts to a ton and a half, which will soon pay the whole cost of the pipe covering installation.

There are many kinds of pipe covering, some of them efficient, some not. Probably all will save some loss of heat, but the accepted principle of heat insulation today is that of the "dead air cell," which is the method used in all the

LOUDEN CUPOLAS and VENTILATORS

(Now is the time to land those Ventilation jobs.
Our experts will gladly help you solve
your problems.)

The Cupola

LOUDEN CUPOLAS are designed for durability, beauty and efficiency. There is not a better constructed cupola on the market, and the ventilating principle is the one long considered as standard. The installation is simple and easy. The base requires no frame on the roof before putting it in place. A special designed moulding with angle-braced wood frame adds great strength to the moulding and base proper, besides being very artistic.

The Ventilator

The LOUDEN VENTILATOR fulfills all requirements. The exhaust openings are of ample area, and they are all so placed that the wind blow across—never into—the openings. Every opening in the Louden Ventilator is an exhaust opening. No air enters the ventilator at any point. Even on the side exposed to the wind the air is constantly coming out of all openings. No matter how strong or light the wind may blow—from north, east, south or west—in a March blizzard, in April shower, or on the sultriest days of August—there is always a strong, steady draft up the flue that will give ample ventilation. It will also do its duty regardless of the difference of temperature inside and outside the building.

The LOUDEN Ventilator is absolutely storm-proof.

Have you received a copy of LOUDEN
BOOK OF BARN PLANS? It is free
to Carpenters. Write today.

Established 1867

Louden Machinery Company, 5504 Fourth Street, FAIRFIELD, IOWA

The Louden Cupola is Very Artistic as
well as Practical.



A Louden Ventilator Actually PULLS
the Bad Air Out of the Barn.



Showing How Louden Ventilators are
Constructed. They are Strong and
Completely Storm-proof—Air NEVER
Enters the Ventilator, it is ALWAYS
COMING OUT.

Cut Labor Costs And Leave a Better Looking Job By Recommending King Aerators and the King Sanitary Ventilating System

Why let one of your best men spend two or three days' time building wooden cupolas when a carpenter and a helper can install "King Aerators" while the crew is getting ready to leave the job?

Save that needless labor expense. It never shows its value in the eyes of the owner. Instead, recommend King Aerators and a King Ventilating system for every barn you build. You will please the owner, too. His building will be kept in a more sanitary condition—dry—free from foul air—stock live better—owner makes

more profits—speaks a better word for you.

Prevent Spontaneous Combustion

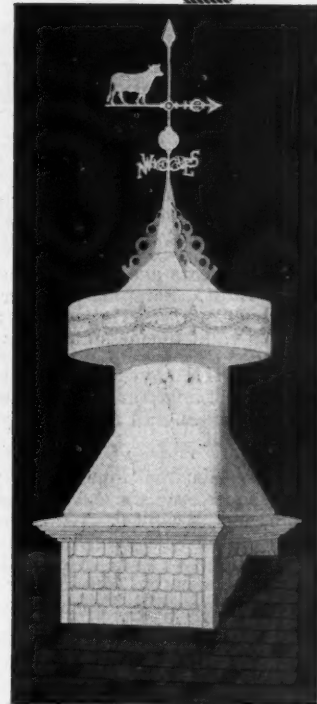
Lack of ventilation in the hay-mow has caused a large percentage of the fires in farm barns. Hay gets overheated—easily ignites—attracts lightning during thunderstorms. Efficient ventilation is the farmer's best protection against this trouble. Tell him about the King equipment.

Catalog mailed free on request.

King Ventilating Co.

1120 Cedar St.
OWATONNA, MINN.

Formerly
Galvanized Steel Cupola Co.



Our catalog will be a great help in showing your customers the beauty in architecture and efficiency of King Aerators. Let us send you a copy FREE.

200% Profit in My Second Year

UP IN a little town alongside the Hudson is a live man. Some day he will be a rich man. For, in a little over two years, he has not only created a business of his own, but has doubled his equipment and is planning to triple his territory.

TWO years ago this Summer, he first heard of the Norwalk Vault. Scraping together \$450, he took over the franchise for his County. He kept his regular business position, working at his vault business at nights and odd times.

WITHIN a year his profits had paid back his original investment, and left him a hundred dollars or so to the good besides. In his second year he cleared more than 200 per cent profit.

ALL this was done, mind you, outside his regular working hours, and, in a dark, low cellar. He had no one to help him; and no capital. Now, however, things are about to change; he is moving into a shop with plenty of light and air and plans soon to resign his position and devote all his time to developing his own business. In another two years, at his present rate, he will be independent with money in the bank.

(Not that we recommend any man to start a vault business in his cellar without capital or proper equipment. The odds against success under these conditions are so great, that it takes a better than average man to win out. But it can be done, and if by any chance you happen to be the kind of man that will make good if given a chance, we would be glad to talk it over with you.)

THE man we would rather hear from, is the one a little surer of success—the man with enough capital to go into vault manufacturing for his locality in a way big enough to make it a pleasure rather than a struggle. With the Norwalk Vault it is just as easy—and a good deal more certain—to make 200 per cent on an investment of \$4,500 as on one of \$450.

THE amount of money required varies directly with the size of the territory occupied. Even in the large cities, though, the capital necessary is astonishingly small compared with the possible returns. You won't need an expensive factory—any respectable shed will do; not high-priced labor—any intelligent laborers can do the manufacturing; nor any large sum tied up in machinery or materials—a few dollars at a time will keep the work going.

THE cement burial vault business is in its infancy. Not one man in ten now knows that in the Norwalk Vault he may provide for a departed wife or brother an absolutely air-tight and moisture-proof protection that literally "Lasts through the Ages." But the idea is spreading fast, and sooner or later this method of sanitary and permanent burial will in your town, as elsewhere, put to shame the old-fashioned damp and muddy cistern of a grave.

EVERY day, therefore, the franchise to manufacture the Norwalk Vault in any territory becomes increasingly valuable. Nearly half of the United States has in the last six years already been taken over by local manufacturers. If your territory has not, we will invite you to compare the opportunities of the Norwalk Vault with any other business you can find.

LOOK through the advertisements in this or any other magazine; see if you can discover any other article, patented and trade-marked, with a sale based on as unchanging a thing as the human death rate, that you can develop exclusively in a protected territory, and cash in on as fast as the article becomes known to the public.

IF THE idea appeals to you—and you have the energy and capital adequately to take care of your territory—write us for the details. We'll be glad to answer fully and frankly every question in your list, no matter how long. No obligation whatever on your part. Address

The Norwalk Vault Company

40 Seminary Avenue

Norwalk, Ohio

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

largest insulation work, whether for keeping heat in or (as in cold storage) for keeping it out.

The pipe covering known as "Asbestocel" is an insulation of this "dead air" type, and for low pressure steam and hot water pipes such as are found in heating installations it is economical, both on the basis of first cost and future economy.

It is strongly made with several layers of air cells running round the pipe so that the air cannot circulate nor leak, has no organic felt to decay or form a breeding ground for vermin, and being made of fireproof asbestos cannot possibly be destroyed by heat; in fact, it will last as long or longer than the pipes themselves.

By covering both the flow and return pipes the water of condensation returns to the boiler still hot and consequently requires less coal to heat it, while the heat itself is delivered to the radiators "piping hot," and not half frozen on the way from the basement.

"Asbestocel" is reasonable in price, and the cost for an average 8-room house should not exceed \$20.00. If half of this is charged to increase comfort, the other half will soon be paid in coal saved.

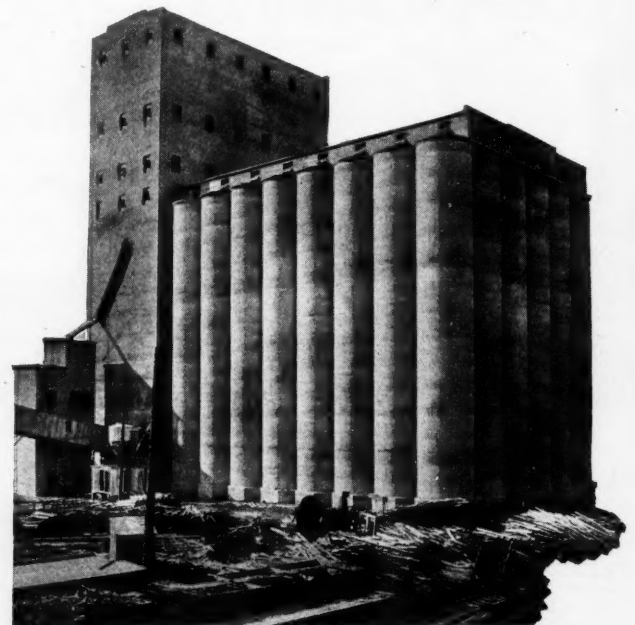
Doubtless most hardware merchants will be able to supply it, but if you cannot readily get it locally a post card to the H. W. Johns-Manville Company, New York, will soon tell you where it may be obtained.



Concrete Elevator Weathers Storm

The accompanying illustration shows a concrete grain elevator that was built at Galveston for the Southern Pacific Railroad. It was completed last June, replacing a wooden one that had been burned.

Reports from Galveston say that the elevator came through the recent hurricane in fine shape. The only damage that was done was caused by flying debris that broke a few

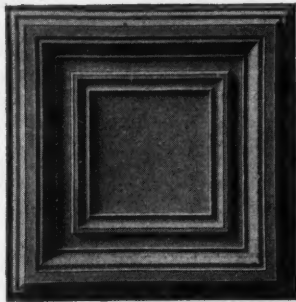


Large Concrete Grain Elevator of the Southern Pacific R. R. at Galveston, Texas. Passed Thru Recent Hurricane Unharmcd. Construction Completed June, 1915, by James Stewart & Co., Builders; 22,000 Barrels of "Alpha" Cement Used.

window panes. The basement was flooded with sea water, but reports say that this did no harm.

The durability of concrete for this class of work is shown clearly by this example. The contractors for the elevator were James Stewart & Company and 22,000 barrels of Alpha Portland cement were used in the construction.

Why Not Let These Products Add To Your Reputation As A Skilful And Experienced Builder?



Colonial Panel No. 4056

**You Save
25% to 40%**

In erection cost every time you erect Berger's "Classik" Steel Ceilings, because they make a tight joint without tamping or calking. Think what an advantage this gives you in estimating and bidding—and the extra profits that are sure to be yours!

**"BERGER'S"
Classik
STEEL CEILINGS**

You also give your trade biggest ceiling value for their money. Berger's "Classik" Steel Ceilings are a perfect fire-retardant, perfect in construction, easily erected in old or new buildings of every kind and size, cannot crack or collapse, are sanitary, ornamental, impervious to bugs, rodents and vermin, and good for a lifetime of ceiling satisfaction.

For an interesting book, showing hundreds of attractive ceiling and sidewall designs, besides giving other information of value to ceiling constructors, write today for our Special Catalog D. A. B.



Berco



Swanee



Chieftain

Berger's Metal Shingles

Now is your time to cash in on the campaign for "Safety First" in building construction. The great majority of fires start on the roof. Underwriters recognize the fire-resisting properties of metal shingles with a substantial premium reduction.

Berger's Metal Shingles offer many important advantages which make it well worth your while to handle them:

Material: Heavy gauge metal that lasts, resists fire, and (if properly erected) gives protection against lightning.

Design: Three artistic designs to choose from, which add to the appearance and increase the value of any building.

Construction: Three-point contact side-lock closes the joint perfectly, while extra high corrugations, with knife-edge finish at the top, insure a wind and water tight roof.

Application: Being automatically interlocking and self-aligning, anyone can apply them quickly and neatly with a hammer, a pair of snips and nails.

We have just compiled a book which gives important information of interest and value to every dealer in building materials. Send for a copy today. It's free. Simply ask for our Special Handbook E. A. B.

The Berger Mfg. Co., Canton, Ohio

The Largest Sheet Metal Works in the World

Address Our Nearest Branch for Best Service:

Boston

New York

Philadelphia

Chicago

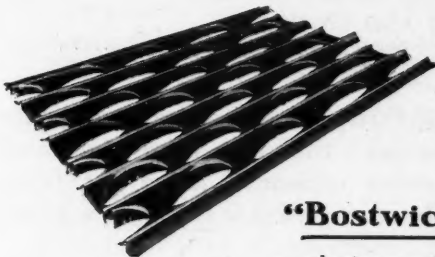
St. Louis

Minneapolis

San Francisco

Export Department: Berger Building, New York City, U. S. A.

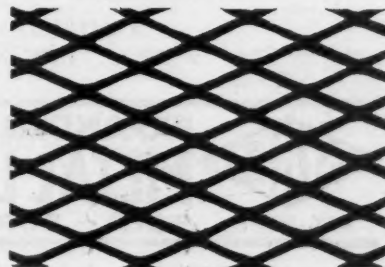
BOSTWICK METAL LATH



Both **"Truss Loop"** and
Expanded Metal

**GIVE THE BUILDER THE
BEST OF RESULTS**

"Bostwick Truss Loop" shows a lower
cost of finished
plaster surface than any other type.



THE BOSTWICK STEEL LATH CO. . . . NILES, OHIO

Big Shipment of Edwards Steel Trucks to Panama

A great deal has been said concerning the efficient methods used by government engineers in building the Panama Canal. Even now, after the completion, the same thrifty practice is prominent in the operation of the "big ditch." Only the most efficient and permanent devices appear to have been used, and among others will be found the Edwards forged steel trucks.

Selections of this nature must, of course, be determined through rigid investigation. For no other reason would it be consistent to apply a device to secure its maximum ability at a maximum expense. Right here is where the Edwards forged steel truck proved invaluable. Twelve Edwards trucks were ordered and shipped to the Canal



Shipment of 138 Edwards Forged Steel Trucks to Panama.

for investigation. They were placed under constant duty for a period of several months before an additional 138 trucks were ordered—which proves conclusively that they stand the test.

The success on the part of the manufacturer in making this truck the best is due to a most careful study of conditions prevailing in almost every industry where two wheeled trucks are used. To be sure this required several years of careful study.

Nothing will more convincingly prove the ability of the Edwards truck than an actual demonstration. A test will tell the tale.

The Edwards Manufacturing Co., 401-417 Eggleston Ave., Cincinnati, Ohio, have issued an attractive booklet on trucks which will be mailed free upon request.



American Association of Engineers to Hold Chicago "Booster" Dinner

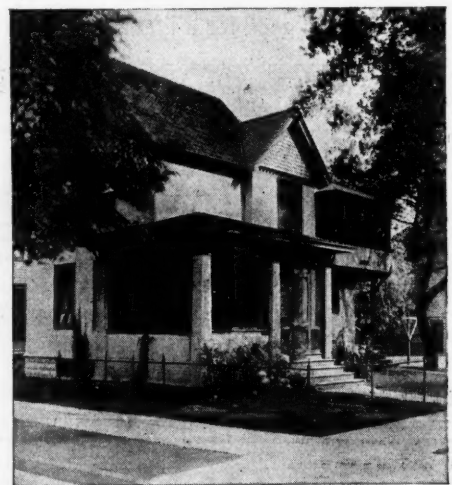
Invitations were sent by the American Association of Engineers to the engineering departments of all the principal railroads, corporations and firms in the City of Chicago to attend a booster dinner held at the Hotel La Salle, Sept. 14, 1915.

Prof. F. H. Newell, head of the department of civil engineering at the University of Illinois, and who until recently was director of the U. S. Reclamation Service spoke at this dinner on the "Needs of Organization Among Engineers." The aims of the American Association of Engineers is to raise the standard of ethics of the Engineering Profession and to promote economic and social welfare of engineers; by affording means for the interchange of information; by maintaining a Service Clearing House; by affording patent and legal advice; by supervision of legislation and by proper



The House was Good

An Old House
Made New
by using
SYKES
Expanded Cup
Metal Lath
and Stucco



But the Stucco Overcoat Made it Twice as Good

A STUCCO HOUSE MEANS A SAVING ON PAINT AND ON COAL

Converting a frame house into a Stucco House is a simple job and costs very little considering the big value it adds to the house in beauty and in durability. Contractors and builders find this method of renewing a house both profitable and certain to please their customers. For the best results—use



Approved by Architects. Indorsed by U. S. Government for Post Office work.

For Stucco Work, Overcoating and for Interior Work as well, Sykes Expanded Cup Metal Lath is Best and Most Economical. **FREE**—Complete Specifications for Stucco and Metal Lath and sample of Sykes Metal Lath. Write to

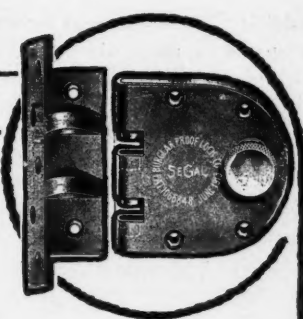
SYKES METAL LATH & ROOFING CO.

504 River Road

WARREN, OHIO

Sykes Metal Lath is Self-Furring—this saves 3 to 5 cents a sq. yd. Sykes is heavier—therefore more rigid and more durable—than other expanded laths cut from same gauge of metal because Sykes is cut with a wider strand.

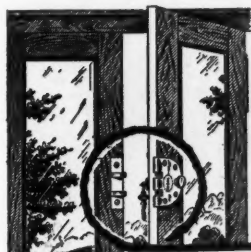
SAFETY For Your Customers— PROFIT For You—



Are both combined in the "Burglarproof" lock. Every carpenter, builder and building contractor realizes the value of the boosting secured from every satisfactorily finished job. When you install a lock, why not put one on that is absolutely safe, that will protect property and life, and satisfy the owner?

Install the **BURGLARPROOF** Lock

It's "jimmy proof," strong, durable and simple. This lock is not made from any iron casting, it is solid bronze, highly ornamental, gives absolute security, can be installed easily and quickly—and it's profitable.



You owe it to yourself to investigate the merits of this lock, to find out just why it is so satisfactory to home owners, and why every big insurance company has endorsed it. You're in business for profits, here's your opportunity.

Write today for complete details and descriptive matter on the patented "Burglarproof" Lock. You'll be surprised at the profits you can make by installing it where absolute security is demanded.

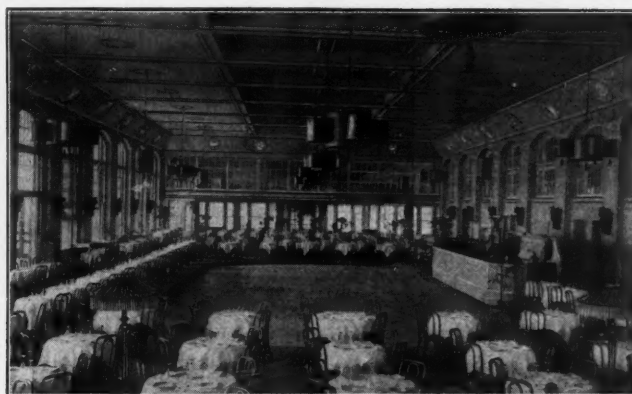
Burglar Proof Lock and Hardware Corp.
13 Park Row - New York City

Burglar Proof Lock and Hardware Corp.
13 Park Row, New York City

Please send me your special literature for builders, prices, discounts, etc

NAME _____

ADDRESS _____



Vernon Castle's Dancing Pavilion, Long Beach, N. Y.
(Finest of its kind in America)

CAREY
Ceil-Board
SUPERSEDES PLASTER FOR WALLS AND CEILINGS

was used throughout this building

Investigation by the architects showed Ceil Board to be moisture-proof, and this was a prime essential on account of close proximity to the sea. Decorative possibilities, ease of application and economy of Ceil Board were also considered.

Ceil Board is adaptable to some room in every house, large or small.

Write for "Beautiful Interiors"

THE PHILIP CAREY COMPANY
General Offices 1021 Wayne Ave, Lockland Cin, Ohio
OFFICES & WAREHOUSES IN PRINCIPAL CITIES.



Mr. Contractor and Mr. Builder:—

**This Simple Test
Tells Which is Best**

It is decidedly to your interest to know what brand of Wall Board is best. You are often asked the question, "which is best?" when different building materials are being considered. Isn't it a great satisfaction to be able to answer with positive assurance? When it comes to Wall Board, if you will make this simple test, you will KNOW ABSOLUTELY what brand to use and recommend.

First, secure all the different samples that it is possible for you to get. Cut them of equal size and place in a receptacle containing water. At first, all of them will remain afloat, but gradually they will commence to sink. We give herewith an actual photograph and result of a test conducted last February, March and April.

Roberds' Ideal Guaranteed Wall Board

ROBERDS' IDEAL WALL BOARD is the result of 21 years experience. It consists of four sheets of macerated wood fibre cemented together with three layers of specially prepared asphalt cement, making seven distinct layers. It is absolutely moisture-proof, fire-retarding, will not check nor crack, will not mar nor crumble, and can be kalsomined, stenciled, painted or papered. Finished in gray, tan, mission and quarter sawed oak.

The use of **ROBERDS** will not only add dollars to your business, but add fame to your reputation. Just fill out the coupon and get our Free Package of samples, prices, etc.

The Roberds Mfg. Co., 100 Railroad Ave., Marion, Ind.



This table tells the story. You will notice that

Roberds' Ideal Wall Board

remained afloat 35 days longer than its nearest competitor

Roberds' Ideal Wall Board	60 days 10 hours
2nd Wall Board	25 days 23 hours
3rd Wall Board	8 days 22 hours
4th Wall Board	8 days 4 hours
5th Wall Board	8 days 4 hours
6th Wall Board	7 days 18 hours
7th Wall Board	4 days 3 hours
8th Wall Board	4 days .. hours
9th Wall Board	3 days 22 hours
10th Wall Board	2 days 3 hours
11th Wall Board	22 hours
12th Wall Board	22 hours

FREE PACKAGE COUPON

Roberds Mfg. Co., 100 Railroad Ave.

Marion, Indiana

Gentlemen:—Please send me, prepaid, your Free Package of samples and oblige

Name

Town

State

Women Make the Home



Give them four bare walls, a roof and a floor and they will transform them into a home.

Give them **Birch** and they will increase the attractions and value of the home.

Women know—

With varnish or wax the rare beauty of Birch figure may be developed.

That with Birch Trim a cool, clean, chaste appearance may be given to any apartment.

That for enamel work Birch is unsurpassed by any other wood.

That Birch places all popular finishes, the browns, mahoganies, greens and the wholly new and delightful grays within reach of the builder—that the exact tone wanted can be secured.

They know these things because they have examined

Finished Birch Samples

A set will be mailed you free on request. With the samples we shall be glad to send a copy of Birch Book "C", "Birch Interiors."

Northern Hemlock & Hardwood Manufacturers Association

Oshkosh

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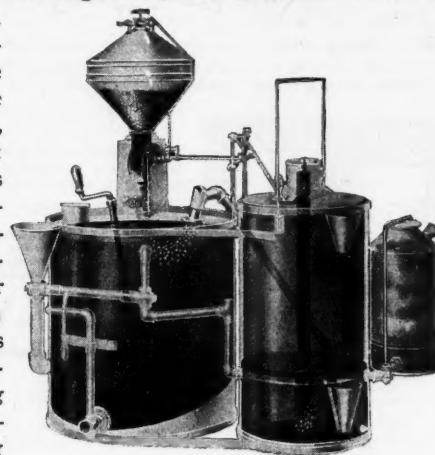
Wisconsin

publicity. A 30-per cent increase in membership, drawn from all parts of the United States as well as from all branches of the engineering profession, has been registered by this organization during the past two weeks. Local chapters are being formed in St. Louis, Milwaukee, Indianapolis and many of the larger cities. A National convention is to be held at the La Salle Hotel, Chicago, on Dec. 10 and 11, 1915. All engineers are invited and the engineering societies and clubs of the United States are urged to be represented by engineering delegates. Further information may be obtained by addressing Arthur Kneisel, Secretary, 29 S. La Salle St., Chicago, Ill.



Big Profits for Carpenters and Builders

The builder, who year after year finds that he is just barely managing to exist and blames this condition on slackness in the building trade, will doubtless discover, in many cases, that poor business methods are the cause. Nine times out of ten, he will find that the secret of his competitor's success lies in grasping all the advantages offered for increasing his profits. This does not mean handling only building work, but installing gas lighting plants, water supply systems, and many other items that are widely advertised in his building paper.



The Sunlight Gas Machine.

The sale and installation of gas machine plants alone should prove a big profit maker for the country carpenter and builder. A careful scrutiny of the builder's community may produce results in the sale of gas machines not even dreamt of.

The Sunlight Gas Machine Company, manufacturers of the well-known Sunlight acetylene gas machines, have a special proposition for carpenters and builders that should be investigated. They state that a double profit can be made by handling Sunlight generators, one selling the machines, and the other in installing.

The Sunlight machine is illustrated herewith. The generator consists of two parts, a generator proper and a gasometer. The action is entirely automatic. The whole process of draining and recharging only occupies a few minutes' time and can be accomplished without trouble or special preparations. There is also a night supply safety device attached.

Catalogs and descriptive matter, and special proposition for builders can be obtained by addressing the Sunlight Gas Machine Company, Department K, 52 Vanderbilt Avenue, New York City.

This company for the past fifteen years has had its offices in the down-town districts of New York City, which was the one-time center of the business district of Manhattan Island. New York City has now outgrown lower Manhattan until the main business center now finds itself between Thirty-fourth and Fiftieth streets. The present address of the Sunlight Gas Machine Company at 52 Vanderbilt Avenue is across the street from the Grand Central Depot, and the Biltmore Hotel, and only a few blocks from the Pennsylvania Station.



Home of W. Oerther, Monroe, Mich. Contractor and Builder, Godfrey Goetz

This Contractor Has Used Them on Six Other Houses

Have your Lumber Dealer stock
at least three standard colors of

"CREO-DIPT" STAINED SHINGLES

17 Grades 16, 18, 24-inch 30 Color Shades

Write us for Sample Colors on Wood
and Book of "CREO-DIPT" Homes

Be sure to give us the name of your Lumber Dealer

Standard Stained Shingle Co. 1028 Oliver Street,
North Tonawanda, N. Y.

Factory in Chicago for Western Trade



HUDSON SHINGLES

Slate Surfaced ^{ASPHALT} Red or Green

Are Practical and Artistic

They Possess Beauty, Fixture and Durability.
They make houses attractive to the prospective home owner.
They are Fire-retarding—Waterproof.
They require no painting or staining.
They are low in cost and fit the average man's pocket-book.
They are easily and quickly laid.
You can have large samples of Hudson Shingles showing their texture and appearance and our new book "Shingling and Roofing," free, postpaid.

Write today for Shingling Aids No. 53.



Asphalt Ready Roofing Co.

9 Church St., New York

This trade-mark on every package. None genuine without it.

Handles Easily

—saws clean and smooth, no shrinking or warping to allow for when you are nailing it on; does not crack or break like wood paneling; always lies flat and straight; these are some of the many strong features that our patented construction gives to—



Trademark Reg. No. 94745.

It's the "right-hand" material for any carpenter.

There are 1001 jobs that can be done with Compo-Board more satisfactorily, quicker, and with less muss, fuss and worry.

But do not get the impression, as many folks have, that "Compo-Board" is a popular name for "wall board." Compo-Board is our trade-mark name for our distinctive kind of a wall board—the kind with our patented centre core of wood slats as illustrated in the border of this "ad."

The wood core is the feature that gives Compo-Board so many strong advantages over other kinds of wall boards and also the feature that makes Compo-Board so easily identified.

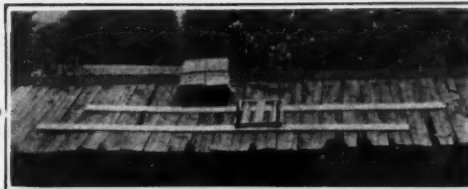
Sold by dealers everywhere in strips 4 feet wide and in lengths of one to 18 feet, as desired.

Write for interesting book and sample.

Northwestern Compo-Board Company

5777 Lyndale Ave., No.
MINNEAPOLIS, MINN.

Pay
No
Money



Take
No
Risk

Make Shingling a Pleasure

By using the Thompson Shingle Car, which will convey one bunch at a time of standard wood Shingles or any kind of shingle material on a roof of any elevation and over solid or spaced sheeting.

Shorter Job—Longer Profits

Place the conveyor on sheeting or staging, push it along and always have shingle material in easy reach. Saves time and money. Makes work on the roof a pleasure.

Mr. W. A. GRADOLFF, P. O. Box 62, California, Mo.

Dear Sir:—Please send prepaid to my address one Thompson Shingle Car as advertised in American Carpenter and Builder. If the car does not meet my requirements, I will return it to you within five days from receipt of same, with no responsibility on my part. If I keep the car longer than five days from receipt of same I will send you \$3.00 in full payment for the car.

Yours truly,

Name

Address



Leroy Marsh Sale Barn at Galesburg, Ill. Equipped with Gale Cupolas Manufactured by the Galesburg Sheet Metal Works.

Big Barn Equipped with "Gale" Ventilators

The illustration shown here is of a big barn that has been recently erected in Galesburg, Ill. It is intended to handle stock sales and is known as the Leroy Marsh Sale Barn.

The sides and the back of the barn are built of common brick and the front is made of face brick. The trim in the front is of white stone. The barn is well lighted with the many windows that are shown.

The ventilation is taken care of by three "Gale" cupola

ventilators as made by the Galesburg Sheet Metal Works, Galesburg, Ill. This ventilator is one product of their complete line of sheet metal goods. These are placed on the ridge of the roof as in the illustration.



Money Making Opportunity

This is an age of great inventions, but no invention of modern times has more attractive features for agents than Grabs automatic shoe cleaner. The manufacturers claim that this labor-saving invention is taking the country by storm; that over one million have been sold; and

Grand Prize

(Highest Possible Recognition)

Awarded to This Company

For the superiority of its Sheet and Tin Mill Products exhibited at the Panama-Pacific International Exposition, San Francisco, California. The *greatest merit* being recognized in the following products as representing the *Highest Development* of the art:

Keystone Copper Bearing Black and Galvanized Sheets

Copper Bearing Open Hearth Terne Plates

Apollo Best Bloom Galvanized Sheets

Coke and Charcoal Tin Plates

Wood's Patent Planished Sheet Iron

American Sheet and Tin Plate Company

GENERAL OFFICES: Frick Building, PITTSBURGH, PA.

DISTRICT SALES OFFICES:

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis
Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City
Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle



Every Set of Plans
Should Include
BAYONNE

BAYONNE Roof and Deck Cloth is becoming increasingly popular with architects because of its many superiorities over tin, tar and prepared roofings.

It makes a very neat job, as it can be laid on the dry boards. It is absolutely water and weather-proof; will wear longer than any other material and is noiseless to tread of feet and drip of rain. Does not crack, peel, contract or expand. Look over your specifications and see whether they include **BAYONNE**.

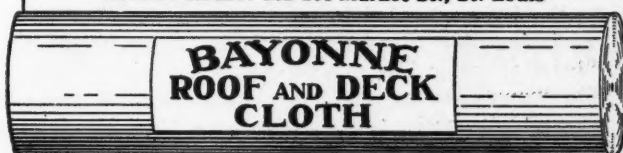
Write for Sample Book "N" giving prices and laying instructions. See Sweet's, Page 539

JOHN BOYLE & COMPANY, Inc.

112-114 Duane St.
70-72 Reade St.

New York City

Branch House: 202-204 Market St., St. Louis



ASK THE MAN WHO
KNOWS ROOFING

"Well Sir, my advice as to the
best kind of covering is
CON-SER-TEX"

"I've used it for roofings, porch-floors, sleeping verandas and bungalows. It gives continual satisfaction."

Con-ser-tex is a specially woven canvas roofing, chemically treated to preserve the fibre from mildew and the detrimental action of the oil in paint. It is water-proof, weather-proof, rot-proof and wear-proof.

Costs very little.

Is easy and inexpensive to lay.

Makes a neat, smooth, durable surface.

Will not leak, rot, stretch or shrink.

Better secure complete information and samples from

William L. Barrell Co., 8 Thomas St., New York

Chicago Distributors: Geo. B. Carpenter & Co., 430-40 Wells St.
California Distributors:
Waterhouse & Price Co., Los Angeles.
The Pacific Building Material Co., San Francisco.



"Bay State"
has stood
the test

Builders, East and West, have been putting Bay State Brick and Cement Coating to the test these sixteen years. It has proved its merits as a *permanent protection* against rain, snow and all kinds of weather.

Bay State *Brick and Cement* **Coating**

waterproofs concrete, stucco and plain cement, but doesn't lose the distinctive cement texture.

It comes in white and in beautiful tints, giving the richest artistic effects. It adds a new decorative value to the economy and durability of concrete.

Bay State Coating for interior use outclasses lead-and-oil and cold-water paints.

Try it—we'll send you a **SAMPLE CAN FREE**. When you write, specify tint desired. Ask for booklet 30, too.

WADSWORTH, HOWLAND & COMPANY, Inc.

Paint and Varnish Makers

Boston, Mass.

New York Office: Architects' Building

SAN-A-BESTOS
STUCCO



**Gives Your Buildings a
Pleasing Distinctive Effect**

San-A-Bestos Stucco has an individuality all of its own. It lends itself to the most artistic and pleasing finishes—finishes that are permanent, soiling of course with time, but that can be cleaned so as to look like new again.

San-A-Bestos possesses great tensile strength and is not affected by climatic conditions. It possesses flexibility that gives with settling or other disturbances, making cracking improbable. It is fire-proof and damp-proof. Give your customers better and more permanent finished buildings, it costs no more and helps you.

Responsible, Local Men Wanted

We also manufacture San-A-Bestos Composition Flooring, at a low cost. Flooring material the equal of tile, terrazzo or marble. Our catalogue of San-A-Bestos Building Products is sent Free to all Builders who write for it.

FRANKLYN R. MULLER COMPANY

Waukegan, Illinois



GERMANTOWN MASTER BUILDER

TOOLS CARRY A PRESTIGE OF 57 YEARS' GROWTH

For over a half century these tools have been made up to an IDEAL, made to conform to a standard of quality of the most undeviating sort. You can buy no better tools in all the world.

Quality steel, expert workmanship, modern factory conditions, special machinery and a rigid system of inspection and testing guarantee every "MASTER BUILDER" to be positively right. In balance, swing, working qualities and wear they give satisfaction to the most particular workman.



This hammer comes in three sizes: No. 745, 11 oz., No. 746, 16 oz., No. 747, 20 oz., at \$1 each. They are of an ideal hardness, with a strong "all-gripping" claw, a second growth hickory handle, octagon-shaped and fitted to stay.

This hatchet is a favorite with every workman. It comes in two sizes at \$1.50 each. Has thin bit, keen, long-enduring cutting edge, and swell-ended second growth hickory handle. Drives nails like a hammer.

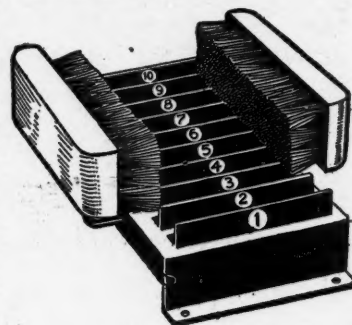
GERMANTOWN TOOL WORKS

PHILADELPHIA, PA.

Branch:—62 East Lake St., Chicago

that millions are waiting to buy. Its sale offers big opportunity to agents. Those who are "in the know" say fortunate indeed are those who have or will get their county under exclusive contract, as it is an opportunity for the agent to make his entire or spare time productive of big earnings. It supplies an enormous demand—solves a great home problem in which nine out of ten families are vitally interested. Practically every home offers a prospective customer for the sale of one or more.

Dirty shoes with their load of dirt, mud or snow have been the bane of every woman's life. "Wipe your shoes before entering this house," has been everybody's wish, but nobody's privilege. Door mats and crude steel scrapers fail in this mission because they are not scientific. They clean the sole, but not the shoe; the bottom, but not the sides.



Grab's Shoe Cleaner.

Grab's automatic shoe cleaner deals with this, an old problem, in an entirely new and better way. This ingenious device, weighing less than four pounds, actually cleans the entire shoe in one simple operation. It cleans the sole—the sides—the front—the heel. Mud, dirt, dust, snow is removed in a jiffy.

In the home guarded by one or more Grab's scrapers there is less dirt to contend with, less work to do, less drudgery to suffer, less shoes to buy.

The manufacturers want representatives in all parts of the country to assist them in supplying the wide demand already created. By all means investigate this proposition today by addressing the Security Manufacturing Company, Department 72, Toledo, Ohio, and receive their free catalog, with reports of wonderful money-making results achieved by others.



New Birch Trim for Old Houses

SEND FOR FREE BIRCH PANELS

Many of the older residences in every locality, whose interior woodwork is thickly coated with paint or enamel, are candidates for new birch trim finished in accord with modern ideals.

The demand for proper trim is based on the economy of natural finish or stain and varnish, as opposed to paint or enamel. The latter require frequent renewing to maintain their attractive appearance. The varnish or wax treatments may be freshened up with practically no expense. Then, too, age increases the beauty of properly finished birch, while the passing hand of time destroys the luster of paint or varnish.

Some carpenters and contractors associate trim with new structures, seemingly thinking that is the only place where trim may be used. Getting away from that set belief, the installation of trim in old homes beckons alluringly to the man who wants work all the year round.

Naturally winter is the season in which this work can be done to the very best advantage. Other work is slack and there is opportunity here to get new business and at the same time to lay the foundation for future patronage that will be worth a very great deal if followed up in the right spirit.

The Northern Hemlock & Hardwood Manufacturers' Association, with headquarters at Oshkosh, Wis., have made arrangements to furnish, free of all charges, a complete set of finished panels which the contractor should have in his possession to interest his customers and possible customers in "New Trim for Old Homes."

Let Your Specifications Read WRIGHT WIRE LATHING

Many of the country's foremost architects specify Wright Wire Lathing. It was used in the Grand Central Station and many other famous structures, as well as costly residences, because it resists the ravages of time and fire as no other lath can.

Wright Wire Lath is made in three finishes—Plain, Japanned and Galvanized. The illustration at the left shows Wright Galvanized Lath.

Our Catalogue W, describing Wright Wire Lathing in detail, is an intelligent guide for architects and builders. Send for a copy of this book today. Free on request.



WRIGHT WIRE COMPANY

WORCESTER, MASS.



The "STANDARD" Take Down Square

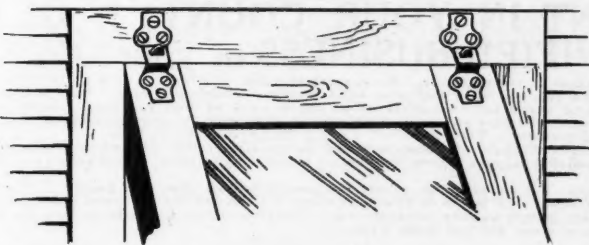
The finest and only square on the market that can be SAFELY used.

For when it is LOCKED—see cut—it cannot slip, and is mechanically square.

Go to your dealer for it—TODAY—or we will forward one to you for \$2.50.

Also Makers of the
New "HOLDFAST" Bevel
send 50 cents for sample

THE SOUTHTON HARDWARE COMPANY
SOUTHTON, CONNECTICUT



"Peerless" Hangers and Fasteners



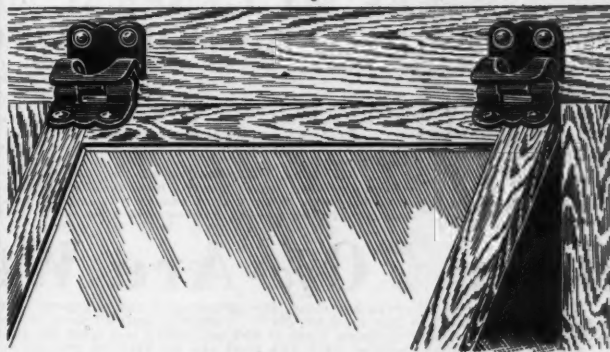
Just what you want to enable you to hang your Storm Sash correctly. Once applied no tools are needed to take down or put up the sash, and screens can be hung on the same hooks. No. 1719—5 or 10 inch Fastener locks the sash quickly and securely.

Write for Circular "A" describing "Peerless" Hangers and Fasteners.

MADE BY THE
STANLEY S.W. WORKS
NEW BRITAIN CONNECTICUT
NEW YORK CHICAGO

H I N G E H E A D Q U A R T E R S

No Better Hanger Made



WATROUS SAFETY SCREEN OR STORM SASH HANGER

has no equal. It is **Safe, Strong and Satisfactory**. Easier to put up. Serves a double purpose. Write for FREE Sample.

Our Wrought Steel Butts are equally as good.—Ask for them.

Your dealer sells our line—if not write us direct.

Watrous-Acme Mfg. Co.

Des Moines, Iowa

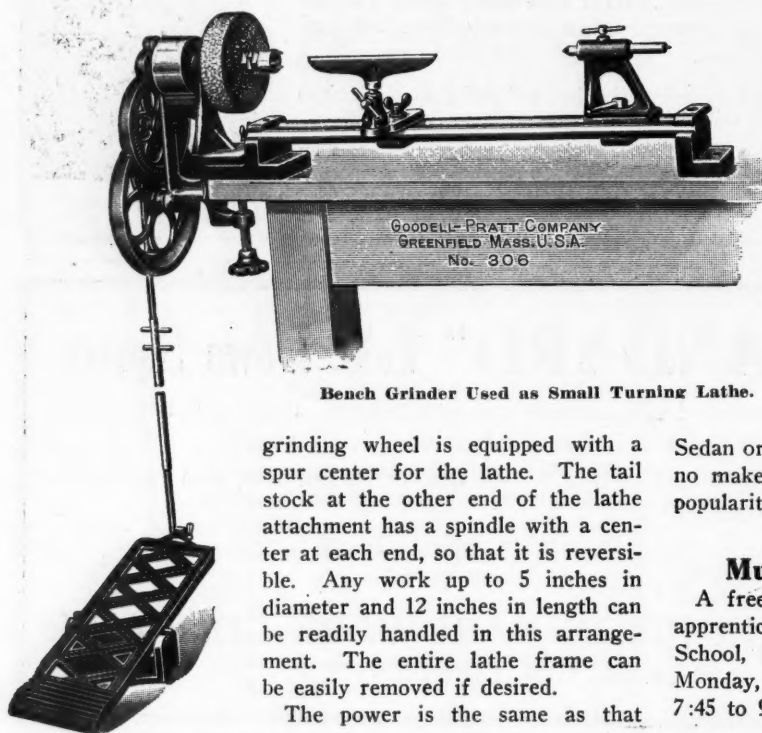
Chicago Sales Office:

180 N. Dearborn Street

A Handy Lathe Attachment for Bench Grinder

An attachment has recently been perfected that will be mighty useful to the man that has occasional light jobs of wood-turning. It consists of a lathe that is attached to a bench grinder.

As shown in the illustration, the nut that holds on the



Bench Grinder Used as Small Turning Lathe.

grinding wheel is equipped with a spur center for the lathe. The tail stock at the other end of the lathe attachment has a spindle with a center at each end, so that it is reversible. Any work up to 5 inches in diameter and 12 inches in length can be readily handled in this arrangement. The entire lathe frame can be easily removed if desired.

The power is the same as that

furnished the grinding wheel which is by a foot treadle transmitted through cut gears. These machine cut gears are guarded to prevent pinching the fingers or tearing the clothes.

The Goodsell-Pratt Company, Greenfield, Mass., will be glad to furnish further details of this machine to those interested.

Busy at Kissel Kar Plant

"Men whose business it is to visit automobile manufacturers say that nowhere is there a busier plant than that of the Kissel Motor Car Company," says H. P. Branstetter.

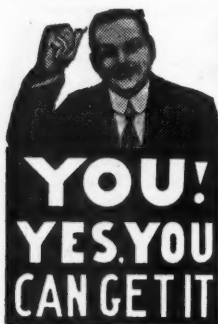
"This great activity, which has continued several months with no sign of abatement is in a great measure due to the All-Year Car. When the Kissels conceived the idea of a two-in-one car last year it was immediately predicted that it would be in great demand.

"Thus far nothing has appeared that is anything like the Kissel All-Year Car. There is no other that offers a complete winter car.

"In this Kissel innovation you can sit back and enjoy star-gazing on a summer night, as thoroughly as you can the warmth and comfort of the Sedan or Coupe when the weather is less congenial. There is no makeshift about this car in either form and to this its popularity is attributable."

Murray Hill Evening Trade School

A free course is now given in carpentry and joinery for apprentices and carpenters at Murray Hill Evening Trade School, 237 East 37th Street, New York City. Sessions Monday, Tuesday, Wednesday and Thursday evenings, from 7:45 to 9:45.



\$300 MONTHLY for YOU

BE MY GENERAL AGENT IN YOUR COUNTY! GET INTO AN HONEST, DIGNIFIED BUSINESS of your OWN!

The man who makes big money doesn't depend upon his own efforts. He organizes other men and makes a profit from their labor, too. I show you how to do just that. Give you valuable exclusive sales territory absolutely free. Put you in a position to manage a large crew of successful agents and make fat commissions on their work as well as yours. With the fastest selling specialty on earth — with the help I can and will give you, and with money rolling in from your own sales and the sales of from six to ten men working under your direction — YOU SIMPLY CAN'T HELP BUT SUCCEED.

You are an opportunity seeker. All you want is the chance. I know you will do your part. If anyone will convince you that he can establish you in a paying, honest, dignified business where big money is practically sure, you'll take the job, won't you?

All right, I'll take you up on your own proposition. I'll appoint you as my representative on that very basis. I'll convince you that we've got the best selling specialty in existence. I'll prove to you that when you secure the exclusive representation for your county that you're not entering into a dinky, paltry agency proposition. You're putting yourself in line for an amazingly big paying business of your own with profits of from \$30 per week upward.

Over 70% Are Without Bath Rooms

In country and small towns and cities, the percentage is vastly greater than that. These people have gone without the exhilarating, invigorating health-giving bath simply because until now they could not get it. They have used all sorts of makeshifts, sponge baths, wooden, zinc and metal tubs of various kinds. Heavy, clumsy, unsanitary, in-the-way tubs. Lugging them in and out before and after the bath. Taking up valuable space all the time.

I have invented a practical bath tub that can be used in any room — bedroom — sickroom — kitchen — anywhere — a tub that can be sold at a price within reach of the masses — a tub that is light and yet durable, one that can be folded up and and stood up in any corner when you are through with it. — THE ROBINSON STEELINE PORTABLE BATH TUB.

I wish I could show you this wonderful tub. Look at the picture. See how it folds up after the bath. Pick it up with one hand and stand it away in a corner just as you would an umbrella. Isn't that the climax of convenience? In use it's as stable as the stationary tub — as luxuriant a submergent bath as any city bathroom affords. Can't tip or splash, equipped with a handy self-emptying device — plenty of room — just the right shape — simple — perfect — absolutely ideal.

We build it of STEELINE, the wonderful new material, and guarantee it for ten years.

YOU MAKE \$5.00 ON EVERY SALE

Think of it. What's the use of wasting your time and effort pushing some specialty that sells for a few cents, when the same time and energy will make you \$5. You get exclusive territory. We protect you. Give you county rights. No cost to you to secure exclusive territory. Then you can appoint sub-agents. If you are a hustler you can make more on this proposition than many a high-class salesman makes on a straight salary. In fact there is no limit to what you can earn. Just one sale a day means \$30 a week. Think of that — two a day means \$60 a week.

NO EXPERIENCE NECESSARY I don't care if you have never had a day's selling experience in your life. I know that you can sell this tub and sell it fast enough and often enough to make big money. I know it because fifty per cent of my best representatives are men and women and even boys and girls who never sold a dollar's worth of any kind of goods in their life before they started to work for us.

This is no fairy-tale. No dream of mine. Every word I write is founded on what has been done by the representatives who are now working for me. I know that they are just ordinary men and women. I know that if they can sell these tubs as they are selling them that YOU can do the same thing — that YOU can make the big money just as they do. I want to tell you all about it — what my men have done and what you can do. Let me send you full descriptive matter about my goods and convincing testimonials from others I have helped to succeed.

Write today — NOW this very minute — either a postal or letter. These exclusive county agencies won't last long. Pick one of these plums while you can — NOW!

H. S. Robinson, Pres., THE ROBINSON CABINET MFG. COMPANY

708 FACTORIES BLDG., TOLEDO, OHIO. For Canadian Territory Write Our Canadian Branch at Walkerville, Ontario, Canada

Send no money. Just name on penny post card for free tub offer. Hustle!

I tell you people are simply falling over each other to buy these tubs. All you have to do is to show them and write out the order. In the country and smaller towns practically every home is a prospect. Even in the city it is surprising how they sell. Right here in Toledo, Mr. N. J. Smith is averaging two sales a day. Used to work in a hardware store at \$65 a month; now he makes that much every week. You can, too. I will send you the records of lots of men who are making big money — just ordinary men and ordinary towns.



DEMONSTRATING TUB FREE

I grant credit — Furnish a sample. Help you out — Back you up — Don't doubt

— Don't hesitate —

don't hold back — You can't lose. My other men are building homes, bank accounts, so can you. Act then quickly.

SIMONDS GUIDE

THE
SIMONDS SAW
FOR
CARPENTERS

FREE

Write for
it Today
**SIMONDS
GUIDE**

for Carpenters

What it Contains

Rafter and Stair Sketches and their cuts, Directions in Framing Rafter and Stair Stringers, Building Terms, Concrete Formulas, Brickwork and Tables, Loads that Materials will carry, Paints and Varnishes, Stains, etc., Weights and Measures, First Aid for Accidents and, most important of all, how to take care of

SIMONDS SAWS

How to Set and File a Saw, how to File SIMONDS Saws for bevel and mitre cutting, How to straighten bent saws and other valuable saw information. It also tells you some facts about SIMONDS Saws and why they are so popular with builders. Simply send us your name and address and we will mail you this handy book.

SIMONDS MFG., CO.

"The Saw Makers"

Fitchburg, Mass

No Warping—Twisting— Shrinking or Waving

Our waterproofing solution takes care of that. It fills the pores and protects the fiber from the dampness in the air, eliminating shrinkage.

It hardens and stiffens the board making it easier to handle and eliminating warping and waving.

It "ready sizes" the board, giving it a surface on which to decorate that requires no further attention before painting.

Two coats of paint on Plastergon **without** sizing produce the same effects as three or four coats on other boards.

IMPROVED
PLASTERGON
TREATED
WOOD FIBRE
WALL-BOARD

THIS IS THE

Board You've All Been Waiting For

Because of its strength, stiffness and water-resisting qualities, you can use Plastergon safely in basements, boat houses, brick and concrete buildings and other places where you wouldn't dare use an untreated board.

But Don't Take Our Word for This

Send for a sample of this **Waterproof** Plastergon and see these things for yourself.

The Price Will Surprise You, Too

It's less than many ordinary, soft, spongy boards.

Send for samples, literature and delivered price right away—a postal brings them.

Plastergon Wall Board Company

101 Fillmore Ave.

Tonawanda, N. Y.



Ankyra Bolts Hold!

Wherever you've fastened anything to hollow or glazed tile, lath, plaster, Compo-board, sheet iron or steel, concrete, slate, or other stone—you've found a place for ANKYRA.

The pictures show clearly *how* and *why* ANKYRA grips irresistibly in materials of this nature.

Take solid walls, for instance. Here the No. 8 E bolt fills the previously drilled hole, and is *twisted* and *expanded* into the wall, when the *ordinary* wood screw is driven into the bolt. Look at the top right-hand corner.

In hollow walls, any of the other ANKYRA bolts are pushed through the hole by the special expanding tool and a turning of this converts ANKYRA into the winged nut you see.

In other words, ANKYRA, in either case, becomes a nut that remains permanently in the wall or tile; and the ordinary wood screws that are used can be driven or drawn at will any number of times without disturbing the nut.

Can you imagine anything simpler or stronger? Anything that makes a neater, quicker, easier job?

Ask us for an interesting illustrated booklet on ANKYRA and its uses. Most dealers sell ANKYRA.

Ankyra Mfg. Co.

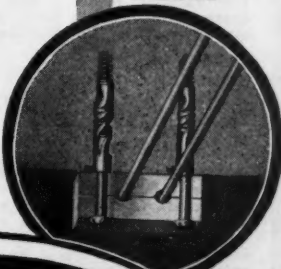
151 Berkeley Street

Wayne Junction

Philadelphia



ANKYRA holding shade fixtures through metal window frames.



ANKYRA in and through concrete. ANKYRA for wiring cleats—imbedded in concrete.



\$25.00 PAID FOR ONE DAY'S WORK



The Million Dollar Hit!

New, wonderful home invention, just introduced, yet million sales already recorded. Tremendous, rapid sale staggers country. Agents happy—banking enormous profits daily. Mighty opportunity for you to get the mighty dollar. Failure impossible. Experience unnecessary. Money rolls in first hour—\$10.00 to \$30.00 daily. Amazing cash records made. Walters made \$25.00 first day; never sold goods before. Arnold, N. Dak., Carpenter, orders one, then 2 gross; sold 160 in 2 days.

Cleared \$80.00 in Two Days

Hagen, Texas, sold 100 in two days. Webb, Pennsylvania, Contractor, averaged 10 sales per hour. O'Connell, Montana, 25 first day. Mike Bock, Minn., writes: "They are fine sellers; worked one day and sold 30 (profit \$15.00)." Harry Gassmann, Illinois: "Can sell scrapers as fast as I can get them. Overwhelmed with orders. Everybody wants scrapers; 100 already sold." Roy Burningham, Mass.: "Send 10 dozen. One week's work." Hundreds like these. You, too, can have money in abundance.

Grab's Scientific Shoe Cleaner

Sells itself—you take orders—that's all. Every family wants one on their doorstep. Replaces unsightly, unsanitary, crude door mat. Automatically removes mud, dirt, snow from shoe in one operation. Cleans sole, sides, heel. Works like magic—sells like "sixty." Saves drudgery, time, money, shoes—saves carpets, floors. Mechanical wonder. Has 7 new patented features not found in any other scraper—10 steel blades—10 dirt outlets—twin adjustable and removable brushes—compound springs. Rotates for sweeping. Can't clog—practically self-cleaning. Handsomely enamelled. Nothing else like it. Nothing so popular—so easy to sell. Selling price only \$1.00. You make half—100%. Satisfaction guaranteed. Write quick for free catalog—exclusive agency. Better still, send order, naming territory. Investigate anyhow.

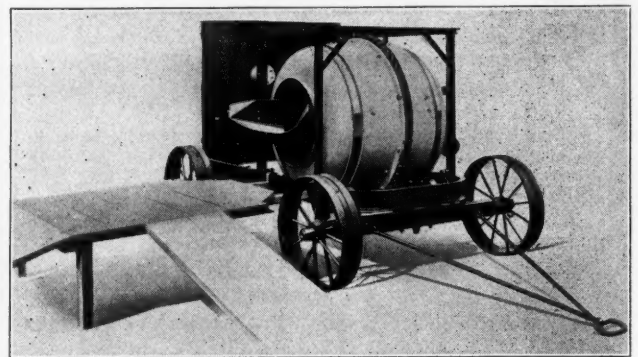
Security Mfg. Co. Toledo, O. Dept. 170

The No. 10 "Rex" Mixer

The No. 10 "Rex" mixer is the latest Chain Belt Company product and the first machine was shipped to the Smith, Hauser, McIsaacs Company of New York for use in the subway.

The No. 10 "Rex" mixer is a one-bag machine with the low-charging features. This machine can also be equipped with a power loader and automatic water tank if the contractor desires it. The mixer can also be supplied with steam engine and boiler, gasoline engine and electric motor. It has a capacity of 10 cubic feet of unmixed material and will thoroly mix and discharge a batch of concrete in 45 seconds. The charging platform is but 22 inches above the ground, allowing the wheelbarrows to run up an easy incline to charge the mixer drum, which has a 21-inch opening. The discharge chute is of the pivoted type and is high enough above the ground to discharge into wheelbarrows.

All materials entering into the construction of the "Rex" mixer are steel or refined semi-steel, the only timber



No. 10 "Rex" Mixer of Chain Belt Co.

parts being the tongue and the charging platform. The drum is of cast semi-steel made in two sections bolted together in the middle. The sprocket teeth are cast in sections which are bolted to the drum. The drum is supported on large chilled tracker rollers which are lubricated by means of compression grease cups.

The "Rex" mixer is driven by riveted chain belt. The frame is constructed of heavy steel channels and thoroly braced. The road wheels are 28 inches in diameter, with a six-inch face, to facilitate hauling over rough roads. The "Rex" mixer is guaranteed for a period of one year against inherent defects in workmanship and material and the Chain Belt Company, Milwaukee, Wis., its maker, will replace any parts that are defective F. O. B. Milwaukee.



New Buildings at Kissel Plant

Ground was broken the middle of September for the first on an important series of building operations at the plant of the Kissel Motor Car Company, Hartford, Wis. President George A. Kissel explains that the company is preparing for the doubling of its production of KisselKars in the near future.

The new buildings are started, one for storage and shipping, and one for the enameling department. The former is to be 100 feet long and the other 110 feet long, each being 35 feet in width.

The third structure, soon to be started, is a modern four-story office building, which will house all of the executive and clerical forces of the company, including the cost and drafting departments. This will not only provide much better accommodations and facilities for these departments, but will also release a large amount of floor space for manufacturing purposes.

When You Want — Tiles and Mosaics

Write

COSTS BUT A FEW CENTS A FOOT—

For
Bathrooms, Kitchens, Hallways
Etc.

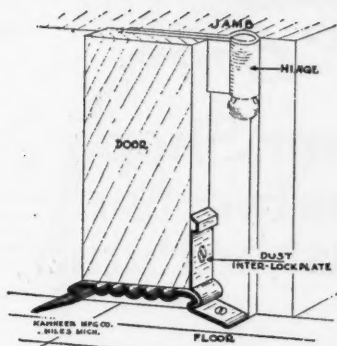
We carry a most complete line of Ceramic Mosaic Floor Tile and Sanitary Glazed Wall Tile for every purpose. Our designs are unusually artistic and correctly executed. The quality is **Lorenzen**—the best guarantee a builder can get. You can depend upon our prices being right.

Let us estimate on your next job or furnish you with an original design. At any rate, write for our Catalog No. 51 on Tiles and Mosaics. A postal will bring it and it is invaluable for your files.

Our large catalog "**Vogue in Fire Places**" is now ready, the most comprehensive and complete catalog ever issued on Fire Places in Tile, Brick and Wood. Write for it.

Send for our Discount Proposition to
Carpenters and Builders

Chas. F. Lorenzen & Co.
103 N. Clark St. CHICAGO



A New KAWNEER Threshold

Made of only solid, heavy gauge brass.

Dust and cold air proof.

Made in two sizes.

Easily installed and adjusted for door settlement.

Combination threshold and weather strip.

Low price, considering the length of its life and usefulness.

Orders can be filled immediately. Complete with weather strip and necessary screws for installing.

Address Dept. A. C.

Kawneer Manufacturing Co.

Niles, Michigan

Makers of
Kawneer
STORE FRONTS

Branches in
Principal
Cities

Straight Talks

on Durametal Weatherstrips

**BUILDERS—CONTRACTORS
CARPENTERS—WEATHERSTRIP MEN**

are making handsome profits installing weatherstrips the
DURAMETAL WAY.

¶ Our unique advertising campaign, handled for you locally secures orders for you direct from parties in your territory, interested in weatherstripping—No tedious wasteful soliciting necessary—Our simple instruction book covers everything on installation to make you expert.

¶ You buy direct from us at manufacturer's prices—make a profit on the strip, and good money on the installation besides. Durametal is simple to install and makes window slides easy. Our door bottom with all brass threshold is a beauty and mechanically perfect.

¶ Some good territories open for active men. You can be busy every day this fall and winter if you secure this agency. Write now for samples and our proposition

"How to Make Money Installing Weatherstrips".

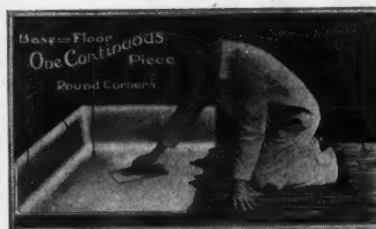
Durametal Weatherstrip Co.

10 East Austin Ave.

CHICAGO

KEEP YOUR MEN BUSY

THIS WINTER AT A BIG PROFIT TO YOU



THERE IS A
**BIG PROFIT TO
YOU in SELLING
AND LAYING
"SANTILITE
COMPOSITION
FLOORING"
IN THE DULL
WINTER
MONTHS**

As you know, "SANTILITE COMPOSITION FLOORING" is laid just like plaster $\frac{1}{4}$ of an inch thick on any sub-floor of wood or cement—sets in 6 to 8 hours into a smooth, jointless, absolutely sanitary surface, without cracks to collect dirt, germs and filth—absolutely no trouble to keep clean—never grows dusty regardless of wear—extremely easy to stand and walk upon—fire will not burn it—water will not soak it—of permanent, pleasing appearance—never requires painting and will last the life of the building.

"SANTILITE" is the ideal floor in the home for the kitchen, pantry, bath or any room where a sanitary, dustless floor is wanted. It is extensively used in the factory for offices, halls, lockers, toilets; and the store, restaurant, cafe, public, semi-public buildings, in areas subjected to heavy wear, where a pleasing appearance, durability and absolute sanitation are required.

There are many masons, building and cement contractors who are making big profits in selling and laying "SANTILITE." It enlarges that branch of your business where there is an ever increasing demand—every home with a wooden bath room or kitchen floor needs it—every public place that has lots of wear must have it. You will find that there is little competition in your own locality, and it is especially attractive for it keeps your men profitably busy during the closed or Winter Season.

Write for samples, illustrated instructions for laying "SANTILITE" and our proposition to make your winter's work profitable.

SANITARY COMPOSITION FLOOR CO.

133 Plum St.

SYRACUSE, N. Y.

Berger Metal Lumber Construction Passes Severe Official Test

The complete report of the New York City official fire, water and load test conducted by Prof. James MacGregor, at the Columbia University Testing Stations, April 15, 1915, has just been made, and contains some very interesting information to all those interested in fire prevention through the building of fireproof structures. The

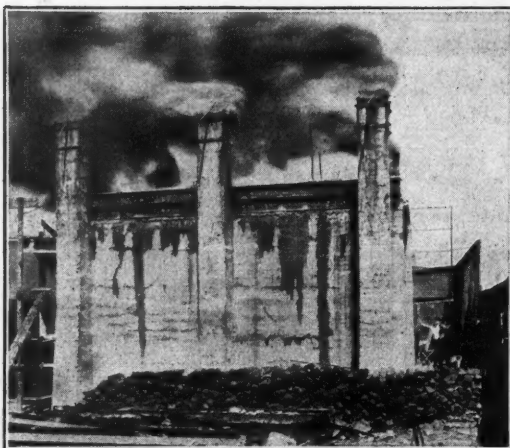
creted and the underside plastered. Under this construction a fire was maintained for four hours, generating an average of 1,700 degrees. Such intense heat for such a long period of time is a condition which would rarely, if ever, be encountered in actual practice in this day of modern fire-fighting methods. At the end of four hours a fire engine was called from a nearby station and water pressure of 83 pounds to the square inch at the fire

engine was directed through a 1½-inch nozzle, against the underside of the floor construction for a period of five minutes. The hose was then taken to the top of the structure and water allowed to flow for a period of 2½ minutes; then another attack with pressure was made on the underside for another five minutes.

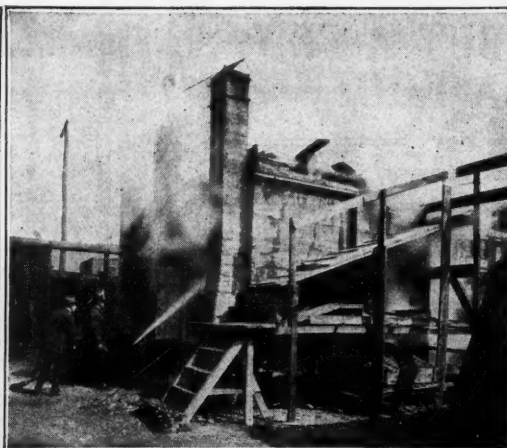
At this point in the test the deflection of the joist measured only 52/64 of an inch.

In order to determine how much life or strength

was left in the construction it was loaded with pig iron to the amount of 600 pounds to the square foot, or four times the weight it was built to carry. The deflection of the joists was only 149/64 inches as against 2½ inches permitted by the New York Building Code. After the removal of the load the final deflection was only 45/64 of an inch.



Testing House During Firing.

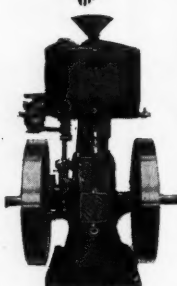


After Four Hours the Firemen Turn on the Water.

test was conducted in a concrete furnace 14 by 20 feet, illustrated on this page, Berger's metal lumber pressed steel floor construction being used as the temporary roof of the building.

Seven-inch joists of 12 gauge pressed steel were placed 15½ inches on centers and covered top and bottom with Berger's B. B. expanded metal lath, the top being con-

The Heart



of the Mixer, Shop, Woodworker, Hoist, or Pump

THE IDEAL

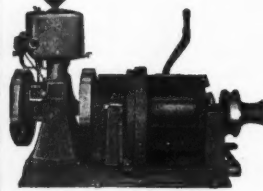
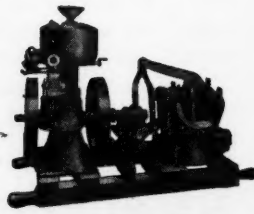
is a heart built for service. It will be on the job all the time, turning your woodworker, your mixer, the equipment in your shop, running your pump or operating your hoist.

QUALITY

in workmanship and material is the secret of its constant service. Enclosed non-oil-leakable crank case with self-oiling, dust-proof bearings on crank shaft are important on concrete mixers and woodworking machines. Frost-proof design, over sized gears, blocks, rollers, cams and valves, are the result of years of experience.

Write for catalogue on complete line of Contractors' equipment

Original Gas Engine Co.
630 Kalamazoo Street
Lansing, Mich.

When You Buy
or Sell
a Silo



The Very Best is
None Too
Good

A Kalamazoo
Glazed Tile Silo

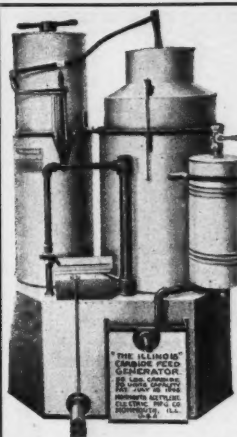
Is a Permanent
Investment

Durability, capacity, economy, safety vouched for by hundreds of satisfied users who know and express their satisfaction by summing it up as

ENSILAGE INSURANCE—PLUS DIVIDENDS

Built by the Pioneer Silo Manufacturer of the United States to withstand Fire and the Elements. Priced to your own town. New sales plan, "Earn cost first, then pay." Stave or Tile. We'll gladly send booklet if you tell us your needs giving size.

Kalamazoo Tank & Silo Co., Kalamazoo, Mich.



Lighting Systems

that are Safe, Simple, Reliable
and Efficient

Illinois and Monmouth Pit Generators

represent the pinnacle of Perfection in Lighting Systems. Their convenience and fine lighting facilities are appreciated by every rural resident. They are very easy to sell and yield you a handsome profit. We give Carpenters and Builders special Prices and Discounts and help them close sales by sending all prospects, handsome booklets and literature showing the desirability of our Generators.

Simply send us the names of persons who might be interested; we'll work together and you act as our direct agent installing and selling them. In the meantime learn more about Illinois and Monmouth Generators by reading over our Catalogue and Proposition—Write

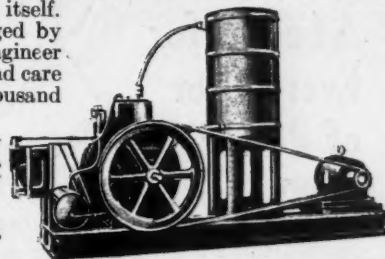
Monmouth Acetylene-Electric Manufacturing Co.
Dept. AB. MONMOUTH, ILL.

You simply switch
on the light!



The Bruston Automatic Electric Light Plant for

Country Homes, Churches, Hotels, Institutions, Small Towns, etc. Absolutely automatic—starts and stops itself. Generates current at $\frac{1}{4}$ the cost charged by public lighting corporations. No engineer and no large battery needed. Labor and care almost entirely eliminated. Over a thousand in successful operation.



Big Opportunity for Builders Carpenters and Builders in small towns and country districts can easily sell and install the Bruston plant at a good profit. We have a special proposition for builders—get in touch with us at once. Write for catalogue and further particulars.

Bruston Automatic Electric Lighting & Power Co., Inc., 126 Liberty St., New York City, N.Y.

100 LBS.



IN GRAY DRUMS
WITH BLUE BANDS

HOME MADE ACETYLENE

Safest Light and Cooking Fuel

Insurance
Records
Prove It!

Insurance records show this—the misuse and abuse of city gas, kerosene and gasoline caused over 100,000 fires in six months. While the misuse and abuse of acetylene caused but four fires during the same period. And there are over a quarter of a million Country-Home-Acetylene-Plants in use. A mighty fine showing for acetylene.

A hundred feet of acetylene makes more light than a thousand feet of city gas. For this reason acetylene light burners have small openings—so small that not enough gas could escape from an open burner—in a whole day—to do any harm whatever.

Our advertising literature tells all about the best way to make acetylene for country home use, and how it is used extensively for cooking as well as lighting. Just address—

UNION CARBIDE SALES COMPANY

Dept. 9, 42nd St. Building, NEW YORK, or Peoples Gas Bldg., CHICAGO, ILL.

Write for the special proposition to Carpenters and Builders

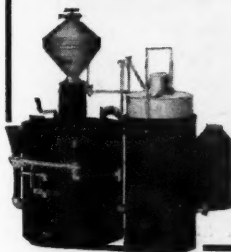
Also, acetylene gas is not poisonous to breathe—you would suffer no harm in sleeping under an open unlighted burner. Also, acetylene burns with no odor whatever—but acetylene from an unlighted burner has a strong pungent odor which immediately attracts attention.

Also, acetylene lights are permanently fastened to walls and ceilings—they cannot be tipped over.

Also, the acetylene producing stone, Union Carbide, won't burn and can't explode.

For these reasons insurance authorities have pronounced acetylene safer than illuminants it is displacing.

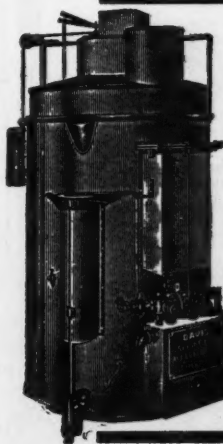
Lighting and Cooking for Country Homes SUNLIGHT GAS MACHINES



Are the oldest reliable acetylene generators in the world. No clock work. No complicated parts. Perfectly automatic. Guaranteed.

All leading contractors recommend SUNLIGHT machines. It pays to do so. Why not make from \$1,000 to \$5,000 a year in deals you can close if you try? Others do, why not you? We will help you. Write Dept. K.

THE SUNLIGHT GAS MACHINE CO.
52 Vanderbilt Ave. New York City
Opposite Grand Central Depot



A MONEY-MAKER FOR THE DULL SEASON

Now is the time to start looking around for an income-producer during the winter months—but don't look any further than this little ad, because a better paying proposition for the Carpenter and Builder isn't to be found.

Install DAVIS Acetylene Lighting Systems

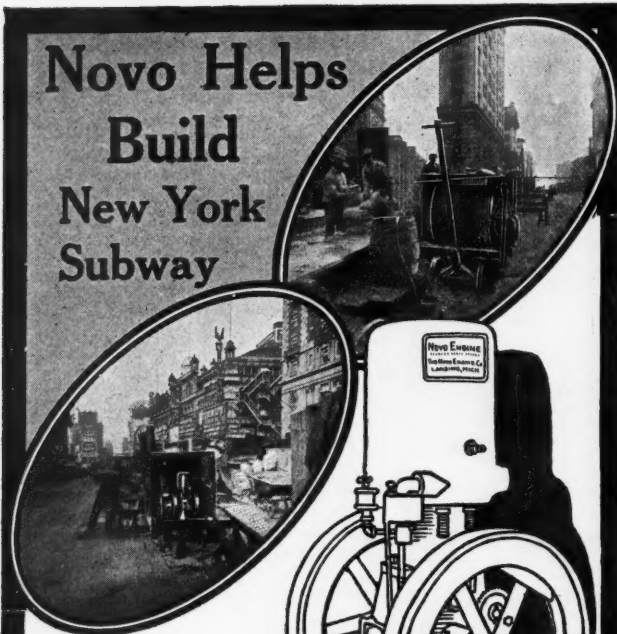
The long evenings are coming on, and where electricity is not available, people welcome a good reliable lighting system like the DAVIS that equals electricity for brilliancy and steadiness.

Get Our Proposition Now

Get in line to get this profitable business. It's there. Write today for our plan and full information.

DAVIS ACETYLENE CO.
90 Crawford St. Elkhart, Ind.

Novo Helps Build New York Subway



A Lesson for Every User of Power

NOVO is shown here mixing concrete in Times Square for Manhattan's new Subway—a job costing high in the millions.

WHY are NOVO Pumps, Hoists and Saw Rigs—NOVO power—seen on almost every job?

NOVO power not only beats mar-rower; it beats steam and electricity. NOVO has eclipsed steam. NOVO costs less—is lighter—handier—safer—no freezing—runs itself. NOVO beats electricity; self-contained units—no outside wiring.

Will You Investigate to Save Money?

Many a power user at first thinks his case "peculiar." But he investigates. He learns facts about NOVO'S wonderful adaptability. Result? He puts a NOVO on his payroll, with this significant remark—"Why didn't I investigate years ago?"

NOVO outfits include all kinds of Power Pumps, Hoists, Air Compressors, Saw Rigs—over 75 different kinds in all—all of them portable.

Our book, "Reliable Power," is free if you will write for it on your business letterhead.

NOVO ENGINE CO. 441 Willow Street, Lansing, Mich.
or Station A, San Jose, Cal.

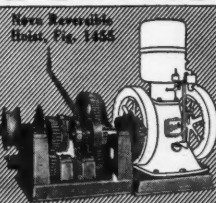
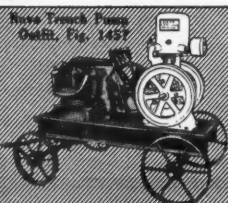
Clarence E. Bement, Secretary and Manager.

NOVO Engines can be furnished for operating on gasoline, kerosene, alcohol or distillate.

NOVO

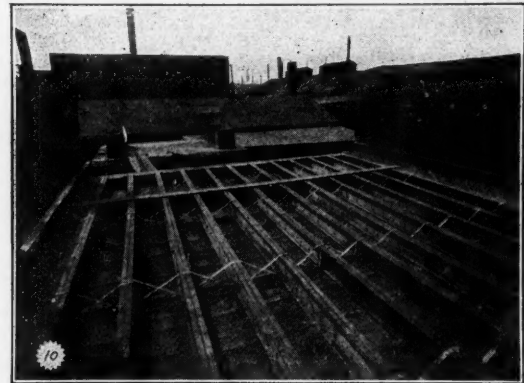
REG. U.S. PAT. OFF.

ENGINES and OUTFITS



"The
Engine for Every Purpose"

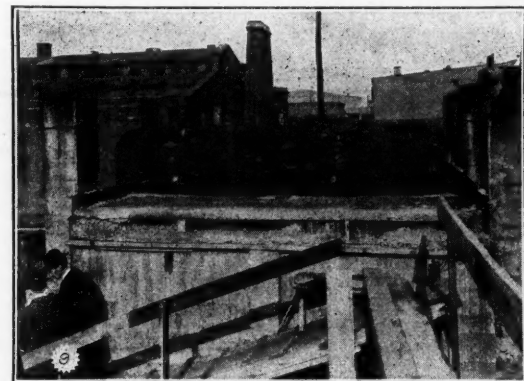
A number of prominent architects, contractors and building authorities were present throughout the test. Every one who saw the abuse heaped upon this construction was astonished at its wonderful fireproof quali-



Construction of Metal Lumber Floor, before Concrete Slab is Poured.

ties. Not a drop of water or a flicker of flame came through.

Berger's metal lumber having passed the official test, has been authorized for use in Greater New York as a fireproof system of construction. It undoubtedly will be very popular in that city as it has been in other localities for the reason that the dead load is comparatively little, being only about 40 pounds to the square



After it was all over Loading of 600 lbs. per sq. ft. Did Not Feaze It.

foot, and the cost less than that of other fireproof materials.

The Berger Manufacturing Company, Canton, Ohio, advises that this metal lumber pressed steel floor construction has been used in over fifty-four types of buildings—thirty-nine states and eight foreign countries. It is adaptable to all styles of buildings, from the small garage to the large skyscraper.

A complete report may be obtained by writing the Berger Manufacturing Company, Canton, Ohio.

Wonder Mixers Awarded Gold Medal

Another one of our advertisers is receiving congratulations on the honors won at the California Expositions. The Waterloo Cement Machinery Corporation were awarded the Gold Medal at both of the Fairs on their "Wonder" concrete mixers.

Chicago Office Established

The W. A. Ives Manufacturing Company, manufacturers of the "Mephisto" tools, have opened an office at 56 E. Randolph Street, Room 608, Chicago.

Mr. G. H. Parker is manager.



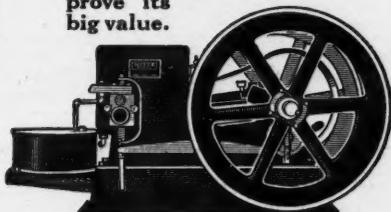
Get My Latest Engine Offer

Let a WITTE earn its cost while you pay for it. Take full 60 days' Free Trial to prove its big value.

Five-Year Guaranty

I unqualifiedly guarantee every WITTE engine for five years against defects, and consequent faulty operation. I carry the risk, as I have done for my thousands of customers during 28 years.

Ed. H. Witte.



WITTE Engines

Gasoline, Gas, Kerosene, Distillate

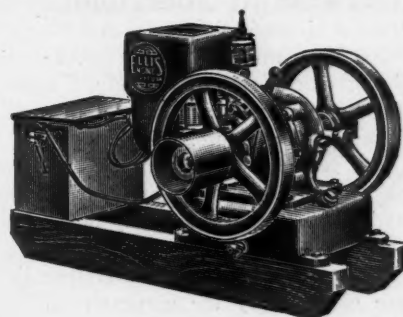
Besides lower prices, WITTE engines use less fuel per horsepower hour, by one-fourth to one-third—enough saving to pay entire cost of engine in a year. Easy starting; no cranking; steady running. My 28 years at one thing, making WITTE engines, makes my higher quality.

BUY DIRECT 2 H. P., \$34.95 8 H. P., \$139.65
3 H. P., 52.45 12 H. P., 197.00
Cash or Easy Terms 4 H. P., 69.75 16 H. P., 279.70
6 H. P., 97.75 22 H. P., 359.80

WRITE FOR MY FREE BOOK, and all about my New Liberal Offer BEFORE you arrange to try any engine. I save you money, besides giving you the easiest chance to get the best engine service. Write me to show you

Ed. H. Witte, Witte Engine Works

1779 Oakland Avenue, Kansas City, Mo.
Office 1779, Pittsburgh, Pa.



"The Engine Ahead"

—that's what one of our customers, who came into the factory, called the 1916 ELLIS Guaranteed Kerosene Engine.

Always a little in advance, the 1916 Ellis has been refined to a point that puts it in a class of its own for service, economy and satisfaction. And our 30-day Free Trial and Ten-Year guaranty backs that statement to the limit.

Remember that the Ellis Engine thrives and delivers the maximum of power on low-grade kerosene—it doesn't have to be petted and coaxed along into running on it.

Thousands of owners, many of whom bought other engines first, now swear by the Ellis. 1½ to 18 H. P., vertical and horizontal, single and double cylinder—just the engine you need, whatever your work is.

Don't miss reading our great book about Engines—Ellis and others. It is called "ENGINE FACTS" and is sent Free on request. Write for your copy today.

ELLIS ENGINE COMPANY

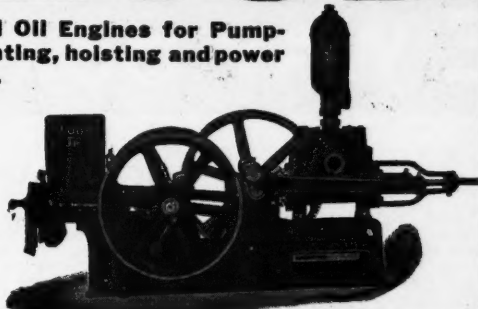
2840 E. Grand Boulevard

Detroit, Mich.



Gas and Oil Engines for Pumping, lighting, hoisting and power service.

1½
to
400
H. P.



THE FOOS GAS ENGINE CO. SPRINGFIELD, OHIO



"BULL DOG" HOISTS

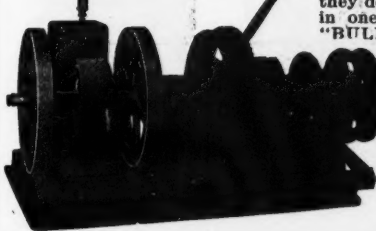
Never Let Go

Because they are powered with a "BULL DOG" Engine. An engine that is built for Long and Hard service under all conditions.

Power Hoists are real Profit-earners for Contractors and Builders. they do the work of several men in one-tenth the time. Get a "BULL DOG" Hoist and watch it pay for itself. Made in three sizes—5, 6 and 8 H. P. Reversible and non-reversing, with or without engines. We'll be glad to send our Catalogue.

BATES & EDMONDS MOTOR CO.

Lansing, - Michigan



FIREPLACE MATERIAL



Every Contractor building Fireplaces should know the advantages of this Dome Damper.

The rod extends out under the brick or tile so there is no interference after the Damper is first set. Wide flanges allow giving sides of Fireplace any angle desired. Cover will not slip out of position. Castings are extra strong. Made with or without angle for carrying brick.

Catalogue No. 1550 shows them in detail

Other Goods We Make

Cleanout Doors, Ash Trap Doors, Cast Chimney Thimbles, Brass Thresholds, Andirons, Fire Baskets, Fire Sets, Fire Screens, Spark Guards, Gas Logs, Door Knockers, Sink Brackets, Screen Door Hinges, Double Acting Hinges, Cast Iron Sash Pulleys, Furnace Pulleys, Stove Pipe Registers, Dampers, Damper Clips, Saw Vises, Door Latches, Foot Scrapers, Chest Handles, Flush Rings, Harness Hooks, House Numbers, Door Pulls, Samson Wind Mills, Feed Mills, Alfalfa and Ensilage Cutters, Gas-cilhe Engines.

Stover Mfg. Co.

725 East Street
Freeport,
Ill.

SEND THIS COUPON TODAY
STOVER MFG. CO., 725 East St., Freeport, Ill.
Send the undersigned information regarding
Your Name Address

Profits in Acetylene

An extra source of profit that is open to carpenters and builders is offered by many manufacturers of acetylene generators and lighting machines. In building a house, it is an easy matter for the carpenter and builder to ask the owner about the lighting for his house, and to suggest the use of acetylene for both cooking and lighting. The builder is in a position to make these suggestions at the right time and to see to it then that the house is properly piped for acetylene gas.

There are many manufacturers of acetylene lighting machines who are glad to pay the carpenter and builder for merely furnishing the name and address of a home owner of this kind. An up-to-date builder can pick up considerable extra money in this way.

The Union Carbide Sales Co., Dept. 9, 42nd St. Bldg., New York City, N. Y., has a special proposition for carpenters and builders interested in this subject. This company manufactures the gas producing stone—"Union Carbide"—that is used in all acetylene gas machines, and has some very interesting literature, which will be sent on request.



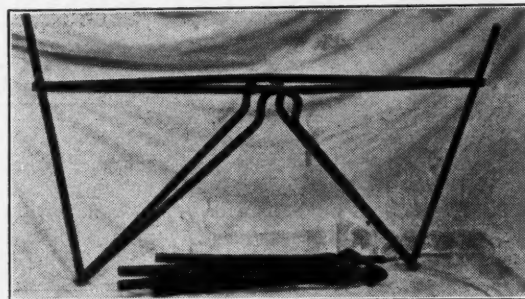
A Time and Labor Saving Roof Scaffold

This scaffold is intended particularly for masons in repairing or building chimneys. It will operate equally well with a chimney on the side of the roof or on the bridge.

Its use on the side of the roof is shown clearly in the drawing. The horizontal bar can be raised or lowered so as to make the scaffolding level, no matter what the pitch of the roof may be.

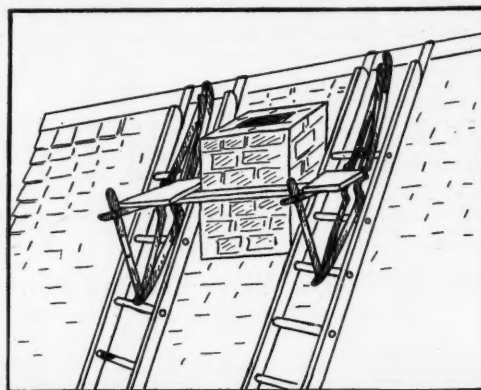
The operation when the chimney is on the ridge is even more simple. The scaffold fits across the ridge and the curve in the center keeps the weight off the ridge roll. The horizontal members can be raised or lowered so that the scaffolding can always be kept level.

The scaffold can be folded into a small bundle, as shown in the photo, when it is no longer required.



The Neville Bracket Folded and Open.

This handy scaffold is called the Neville adjustable scaffold and is made by the Neville Manufacturing Company, Kewanee, Ill., who will be glad to furnish complete details to our readers.



Used in Connection with Ladders for Chimney Scaffolding.

PRICES ARE WAY DOWN

and Huber Prices are the Lowest of the Low—

7½" O. G. Base, per 100 lin. ft.	\$2.75
1½" Base Cleat, per 100 lin. ft.	.35
Wd Beads, per 100 lin. ft.	.31
Cove Mould, per 100 lin. ft.	.34
Corner Beads, each	.10
Drain Boards, each	.90
Plate Rail, per lin. ft.	.05½
Asphalt Slate Shingles, per square (Red or Green)	4.50
Same in rolls	1.90
Guaranteed Asphalt Roofing, per roll	.90
Bath Room Floor Tile, per sq. ft.	.16

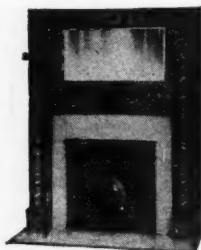
We're going to help you earn bigger Profits this winter by cutting our prices way low on every thing for winter work. Installing mantels is a great winter money-maker and we can furnish you the most complete line of High Grade Mantels to choose from at unheard prices. To the man doing interior altering and remodeling we're offering modern interior trim, china closets, arch grilles, medicine cabinets, flooring, doors, wall board, etc., at prices that can't be beat. We've also got the finest and lowest priced weather strip for the man doing this work. For the winter cabinet maker, our low priced, paints, stains, varnishes, wood fillers, etc., and their high quality will appeal to him. We also have an exceptionally up-to-date and low priced line of Builders' Hardware.

We are headquarters for everything in Building Materials, Lumber, Fir Doors, Roofing, Mill Work, Stair-Work, Porch-Work, Art Glass, in fact everything that makes up the modern building. We have large stocks always on hand and together with our central location insures prompt and low cost delivery.

FREE Our New Building Material Catalogue and Mantel Book. Just drop us a Postal—We'll send them both.

The Huber Builders' Material Company

45-49 Vine St., Cincinnati, Ohio



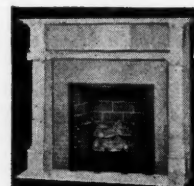
MANTEL No. 1241

6' 2" high, 5' wide, Tile Opg. 42x39", Profile 3", Columns 5", Mirror 36x18", Quartered Oak, Golden Polish...\$23.12
Real Mahogany, Polish..... 24.37



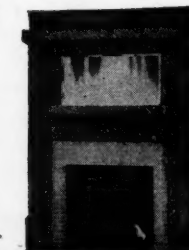
MANTEL No. 24

4' 7" high, 5' wide, Tile Opg. 36x36", Profile 4", No. 24 N. P. (no profile) for use without Tile, Oak only, same price.
Plain Oak, Golden Gloss.....\$3.75
Maple, Mahogany Gloss..... 4.07
Maple, 3 Coats White..... 3.75



MANTEL No. 1295

4' 5" high, 5' wide, Tile Opg. 42x39", Profile 3", Columns 4½", Wht. Wood, 3 Coats White...\$16.87
White Wood, Enam..... 19.37



MANTEL No. 1240

7' high, 5' wide, Tile Opg. 42x39", profile 4", plasters 3½", mirror 36x18", Plain Oak, Golden Gloss.....\$16.25
Quarter Oak, Golden Pol..... 19.06



Delchester Farms, Malvern, Pa.
Contractor: Jacob Myers & Son, Philadelphia

Up-to-Date Farm Buildings

on

Kno-Burn
Expanded Metal Lath

The farmer is just beginning to appreciate stucco construction. He has just come to realize its economy in upkeep and the great safety factor of its fire-resisting qualities.

Stucco on a base of Kno-Burn Expanded Metal Lath is fire proof. It withstands the most severe weather conditions. It costs hardly any more than the *cheapest* plaster base.

Are you cashing in on this great, new field for stucco? Now is the time to get ready. Now is the time to get posted. Let us send you "Kno-Burn Expanded Metal Lath" today. Ask for Booklet 33.

NORTH WESTERN EXPANDED METAL CO.

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**Put Good Equipment
in Good Barns**

HARRIS Barn Equipment

because of its simplicity, its durability and many improvements is becoming most popular with farmers. Harris Barn Equipment because of its profit-making possibilities and ease of installation is finding great favor with builders.

The Harris line includes the famous HARRIS Stanchion, several styles of Stalls, Feed and Litter Carriers, Hay

Tools, Ventilators and miscellaneous equipment. In order to get clear ideas of our products and their installation you should write for our large catalogue—it shows and tells all.

HARRIS MFG. CO.

Box 224

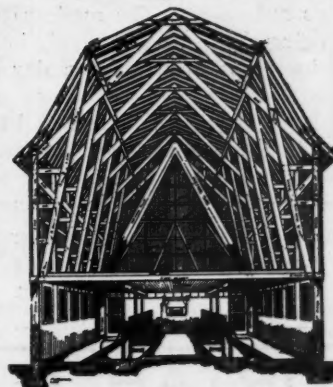
Salem, Ohio



The Way to Greater Barn Building Profits

It will pay you to know JAMES methods of Dairy Barn construction. There's *more money for you* in building modern, properly equipped barns on scientific principles than in putting up the old type. If you build one JAMES barn in a neighborhood it will result in more barn jobs for you, because the dairyman who sees a JAMES barn wants one like it.

Our free service tells about proved principles that enable the builder to establish a reputation as the foremost barn builder in his community.



JAMES Blue-Print and Service Barn Building

includes personal co-operation from Mr. James, the leading authority on barns—also a special offer of complete working blue-prints of several practical dairy barns of different sizes and types—also Mr. James' new book, "Building the Dairy Barn."

THIS VALUABLE BOOK FREE

Write for it today, giving names and addresses of people in your vicinity who expect to build barns, when, and for how many cows.



James Manufacturing Co.

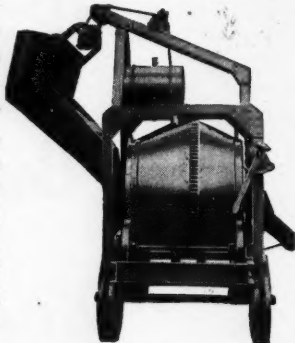
C. T. 75 Cane St.

Ft. Atkinson, Wis.

The 5-6 Eureka Mixer

All the structural and operation features of the new 5-6 Eureka batch mixer are described and illustrated in an eight-page bulletin that has recently been issued.

Special attention is given to the shape of the drum, as it is a most important feature in insuring a thorough mix. The drum on this mixer is made of two cones of unequal size and taper. Both cones slope toward the center of the drum, as shown in the illustration. The manufacturers say that this causes a constant pouring of the mass from the outside to the center of the drum, which aids the steel blades in making a perfect mix. This end to center movement of the concrete will also prevent any slopping at the ends, according to the makers.



Eureka Batch Mixer.

The drum rollers are built on the principle of a railroad truck,—that is they are keyed to the shaft and run in 4-inch babbitted bearings on the main frame. The bearings are fastened to the frame by flanges on the side and are thus bolted both to the top of the frame and to the side.

A copy of this interesting and instructive bulletin can be obtained from the Eureka Machine Co., 103 Handy St., Lansing, Mich.



Roofers Demand Shingles that Wet Cannot Penetrate

"Any shingle that deserves the name shingle will shed water," commented a roofing contractor after listening to a roofing salesman's explanation of the moisture resisting qualities of a new shingle. "What I'm interested in is a shingle that water can't penetrate. A shingle's got to have the right stuff in it to deserve that recommendation."

There is good sound logic behind this roofing contractor's statement. The modern tendency is to demand of a roofing that it be thoroughly impervious to moisture—impervious, not merely for a day or a week of even a year, but indefinitely; and, when a roofing is that well made, when it will withstand moisture in that fashion, it is usually safe to assume that care has been taken to see that it will withstand all the other elements of wear and service that the average roofing must undergo.

In this connection it is noteworthy to observe the extreme precautions that the Heppes Company of Chicago take in preparing their "Giant Flex-A-Tile" asphalt

shingles. Each "Giant Flex-A-Tile" is composed of four different materials: wool felt, liquid asphalt, gilsonite, and slate or granite. The wool felt is used for a base, this is then thoroughly impregnated with liquid asphalt, on top of this is laid hot gilsonite, a high-melt-point, rubber-like asphalt and into this while still hot is compressed the surfacing of slate or granite.

Even to a non-technical mind it is evident how a roof made in this way must be exceptionally strong and capable to withstand a great deal of hard service. Consequently when it comes to a question of absolute imperviousness to wet, "Giant Flex-A-Tiles" comes well within the requirements of the roofing contractor's opinion stated above.

The Heppes Company who are located at Fillmore Street and Kilbourne Avenue, Chicago, offer to send liberal free samples of their "Giant Flex-A-Tile" and their other roofings to any contractor or dealer who will write them.

**Plenty of Work This Winter—
If You Own a**

BERLIN

Portable Woodworking Mill

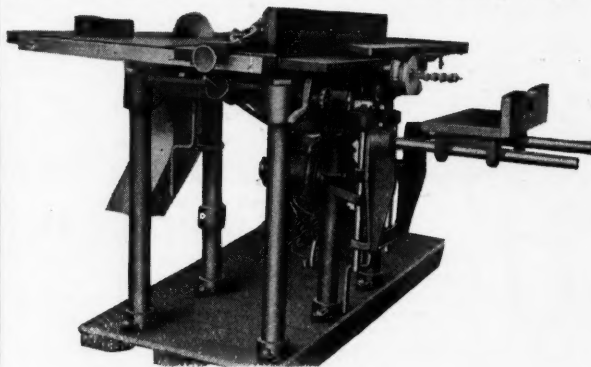
A man with this valuable piece of equipment can do any number of things during the slack season. He can make all sorts of interior improvements—such as built-in side-boards, medicine cabinets, stair work and cabinet work. He can also be getting ready for next year—making sash and doors, exterior and interior trim, etc. Many Builders have paid for this machine and made a handsome profit, too, during the winter season.

A Machine for all Purposes

The BERLIN heavy duty Portable Saw Rig consists of a Rip Saw, Cross Cut Saw, Dado Saw, Grooving Machine, Jointer, Jig Saw, Boring Machine, Sander and Emery Wheel. It comes equipped with either a gasoline engine or electric motor mounted on its own base. It is easily moved from job to job and is strong and rigid. Guaranteed for two years.

Write for Details and Full Information Today

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PORTABLE—PRACTICAL—ECONOMICAL THE BEACH

Double Arbor Rip and Cut-off Saw

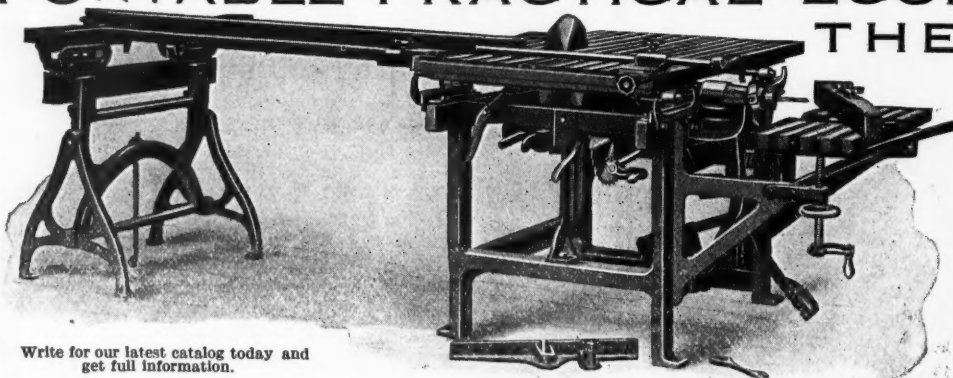
A machine that saves its cost in a few weeks in labor alone—prevents delays—can be taken to the job without any trouble.

SEVERAL MACHINES IN ONE

This machine can be changed from a Rip to a Cut-off Saw instantly. The double arbor and rolling table are exclusive features.

A wide range of work can be done on the borer. The bevel gauge makes for a big economy. The mitre gauge makes it easy to cut rafters for or hip roofs. The dado head is ideal for cutting grooves any width or depth.

Beach Mfg. Co.
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Old, shrunken, warped and out-of-square openings of every kind made dust and draft-proof.

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ASK ANY ARCHITECT. Noiseless, easy-running, non-rattling sash; better than storm sash; absolutely permanent; sash instantly removable for repairs; coal saving pays the cost; solid comfort with a smaller heating plant.

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Possibly you miss your individual need thru ignorance of Diehl's No. 1 ball and Socket, malleable

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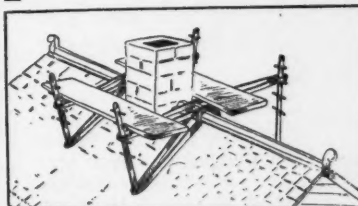
Hang one side at a time. Their service speaks better than we can. Try them next. Let's get acquainted. \$1.80 per doz. thru your dealer or direct. Cheaper hangers No. 2 and No. 110.

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FOR ROOFS

Can be applied over the ridge or on the side. Especially efficient for masons' use in handling chimneys. Saves time and material. Can be used on shingle, metal, composition or slate roofs with absolutely no damage to roof or ridge board or roll. **Folds up compactly** in little space and convenient for handling.



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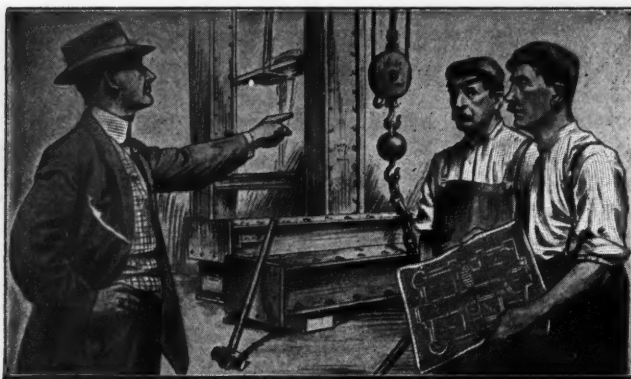
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Gentlemen:—Please send me your book as you promised to do. This of course does not obligate me in any way.

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You'll never get anywhere as long as you're hammering away for the other fellow. You've got to get into business for yourself if you want to get ahead.

Instead of pounding away as a carpenter you should take the contracts yourself and you would earn more in a day than you can now hammer out in a week.

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Please explain, without obligating me, how I can qualify for the position before which I have marked X.

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Foreman Steam Fit.
Plumbing Inspector
Heat. & Vent. Eng.
Civil Engineer
Surveying
Mining Engineering
Mechanical Eng.
Mechanical Draftm'n
Stationary Eng.
Electrical Engineer
Electric Lighting

Electric Railways
Automobile Runn'g
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"The Use and Abuse of Ball and Roller Bearings"

This is the title of a new twenty-page treatise by F. J. Jarosch, Chief Engineer of the Bearings Company of America. The text gives explanations and experiences which help in the selection, mounting and lubrication of ball and roller bearings in automobile gears and in all other rotating parts, and is intended to help in detecting the real cause of trouble. Nineteen drawings are used to illustrate the text matter. Mr. Jarosch contributes in a very practical way valuable thoughts to a much-discussed subject, and automobile engineers as well as many others who are interested in the subject will be glad to know that a copy of this treatise may be obtained free upon request from the publishers, the Joseph Dixon Crucible Company, Jersey City, N. J.



Upright Hollow Chisel Mortiser and Borer

The accompanying illustration shows a convenient hollow chisel mortiser that would save a lot of our readers considerable time and money. It is designed for general wood working shops where accurate mortising is required.

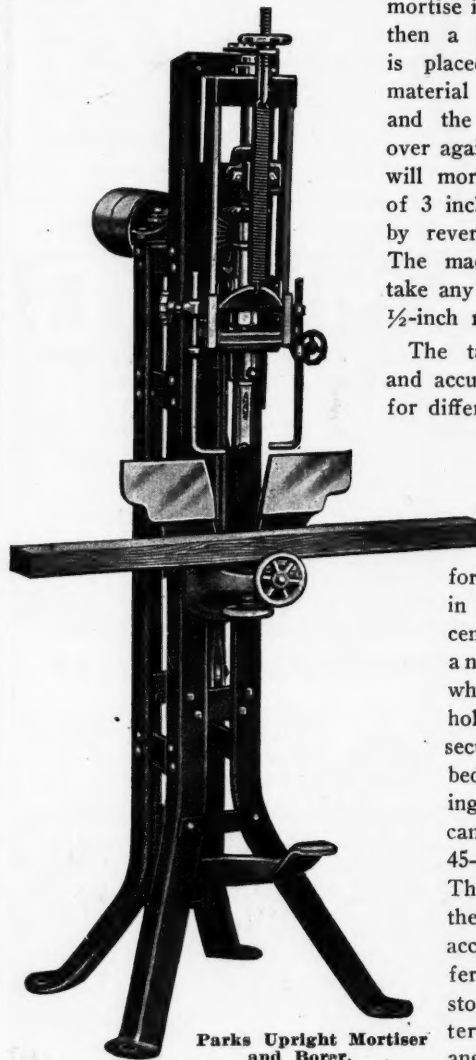
This machine will take any size chisel from 1/4 up to 5/8 inches; but any size mortise can be made by repeating the cut. For instance, if an inch mortise is wanted the half-inch

mortise is made first and then a half-inch board is placed between the material and the guide and the work is gone over again. The machine will mortise to a depth of 3 inches or 6 inches by reversing the stock. The machine will also take any boring bit with 1/2-inch round shank.

The table has quick and accurate adjustment for different thicknesses.

The hand wheel in front moves the guide back and

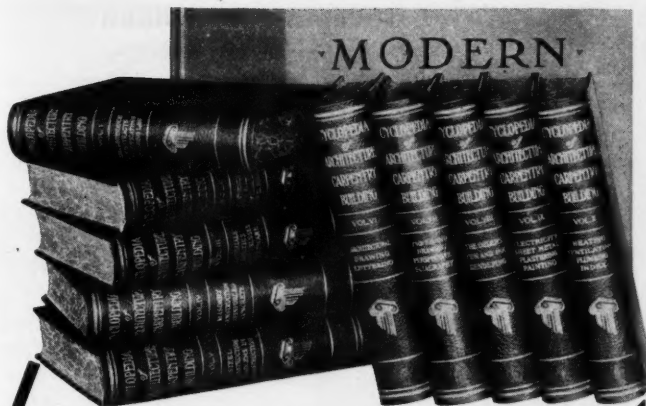
forth and will take in 3 inches to the center of the bit and the hand wheel underneath holds the stock securely. The guide bed rests on a tilting device, which can be tilted to a 45-degree angle. The machine can then be changed to accommodate different widths of stock without interfering with the angle.



Parks Upright Mortiser and Borer.

The power is furnished by a foot treadle that gives a powerful positive pull, forcing the hollow chisel into the wood.

Further details and prices can be furnished by the Parks Ball Bearing Machine Co., Fergus St. and C. H. & D. Ry., Cincinnati, Ohio.



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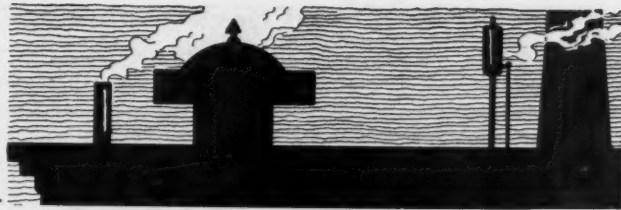
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GALESBURG, ILLINOIS

15 Years On The Market Never A Dissatisfied User

Queen Cupolas have that record. We've been making them for more than fifteen years and they are today giving satisfaction to thousands of farmers. Not a single user dissatisfied.

Queen Cupolas

satisfy because they do what a cupola should do—ventilate your barn. They're strong, handsome, durable and highly efficient. Light in weight and easily put on. Made of high grade galvanized steel. Rain proof. Snow proof. Rust proof. Birds' nest proof. Write for our catalog and 30 days' free trial proposition.

Queen Cupola Mfg. Co., 405 Peck St.
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Genuine "Red Devil" Snips

Rapid and important has been the development of the ordinary tinner's snip. Few there are of the profession who cannot recall the deplorable and very unsatisfactory product of only a comparatively few years ago when the best to be had was snips made of malleable iron throughout. Then the manufacturers welded a little steel plate on the cutting edges.

Considerable credit is due the "Red Devil" Tool Factory, Smith & Hemenway Co., Inc., of New York, for the giant strides made in the manufacture of snips. They were the



"Red Devil" Snips.

first to give the public a really drop forged snip, made of a high grade tool steel. Instead of a thin steel plate, they used a substantial piece of high grade cutlery steel which was welded on the blade.

The illustration is the standard snip with the wire cutter in the blade. In addition to this style, the illustrious "Red Devil" family also comprises special curve snips, combination of curve and irregular snips, electrical snips, dental snips, in a large assortment and sizes.

The Smith & Hemenway Co., Inc., 158 Chambers St., New York City, issue a most comprehensive catalog showing the complete line of "Red Devil" tools and specialties, and any mechanic who is at all interested in tools will do very well to apply to them for a copy, which shows the different sizes, styles, patterns and finishes that comprise the "Red Devil" family.

Why I Became a Salesman

by H. C. Jackson

I had always wanted to be a salesman. Big profits had the most to do with my ambitions, I guess. For ever since I had been old enough to listen I had been hearing the statement that the big money in every business was on the selling end.

But some way or other I never seemed to have a chance to break into the game. That's because I started out with the wrong idea. I wanted to get on somebody's payroll with a guaranteed salary and expense account. If I had known, as I do today, that the men who work on commission usually make more money than the "regulars," it wouldn't have taken me so long to get started making money.

If I could only get some sort of an agency that was dignified, honest and afforded possibilities for the future as well as for big profits, I told my wife, I'd take it.

Then she went over to the library table, pulled out a magazine and showed me an advertisement. "This looks to me like a splendid chance," she said.

"This ad says that any honest, ambitious man can get the exclusive county agency for the Robinson portable bath tub, appoint sub-agents and get a commission on what they make, too. You wouldn't be a common agent then," she appealed to me. "Don't you see you would be general agent for the whole county and have a lot of other salesmen working under you?"

I decided to try.

Our town had no sewer system. There wasn't more than two or three semi-modern bathrooms in the town. Ninety-nine per cent of us were compelled to put up with all sorts of clumsy make-shifts. I knew that conditions were practically the same in eight or ten neighboring towns with which I was familiar.



Why YOU Should Recommend THE VICTOR FURNACE

Mr. Carpenter and Builder:—It will pay you and make contented customers wherever you install Victor Furnaces.

I have been making furnaces for 20 years, and know just how much help a practical furnace builder can be to a contractor, if he really knows his business.

My Furnace will give more WARMTH WITHOUT WASTE

is easier to operate, easier to install, lasts longer without repairs, costs less and has the best appearance of any furnace that I know of on the market today. If I knew of one that was better in any of these points, I wouldn't rest a minute until I had found a way to beat it.

I have been dealing direct with carpenters and contractors for many years, and we don't need much of an introduction to get together pretty quickly if you have a job to figure on.

Write to me for my special terms and let me post you on the Victor Furnace. Then when I have an inquiry from anyone near you, who wants a furnace, I can help you to make the sale.

Just drop me a postal with your name and address and say "Send me your furnace talk."

Address:

W. R. Simons, Manager, SIMONS-LEEDLE FURNACE COMPANY
404 RIVER ST. MARSHALL, MICH.



Thurman No. 2 Electric-Driven Stationary Vacuum Cleaner Installed in Basement of a Residence. The machine is started by pushing electric button on each floor. These machines are made in all sizes.

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Stationary and Portable.

For Residences, Hotels, Office Buildings, Etc.

70 Different Types and Sizes.

Our Engineering Department is at your disposal to lay out your pipe line gratis.

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Originators Vacuum Cleaning Machinery.

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BUILD YOUR OWN Grandfather's Clocks WITH OUR HELP

With the blue prints, instructions, finishing material, etc., we furnish, any handy man can build his own Grandfather's Clock. We sell you the works, dial, weights, pendulum, and everything you need at prices so low as to surprise you.

Works complete, \$5.00 each; others with chimes, all prices.

Here's winter work you can turn to good profit. Make duplicates for your friends. Our designs are clear cut, attractive and salable.

Write for our free offer on the drawings, etc.

Clock Company
1655 Ruffner St. Philadelphia, Pa.



Fenestra

SOLID STEEL WINDOWS
"REG. U.S. PAT. OFF."

Daylighted Garages

Here is an object lesson in Fenestra efficiency.

Note how clearly this "wall of daylight" enables the mechanic to see into the heart of the machine. And the ventilation is perfect—no gas or smoke anywhere.

Fenestra is Fireproof

Our new book devoted exclusively to garage building tells how Fenestra reduces fire insurance, lighting bills and maintenance cost. Ordered in standard sizes, Fenestra is as cheap as wood sash and can be shipped on ten days' notice.

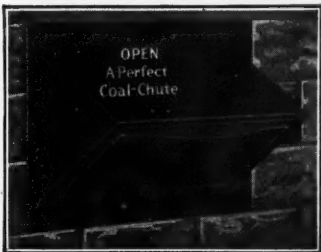
Detroit Steel Products Co.

Department J-16 - Detroit, Michigan



Crescent Garage, Detroit, Mich.

The Window Chute



Ready for the Coal Man

For Your Coal Bin

The Window Chute is a selling feature for any Residence or Building.

**THOUSANDS IN USE---
THE VERY BEST**

If You Build, Buy, Own

Be up to date and
Have the World's
Best

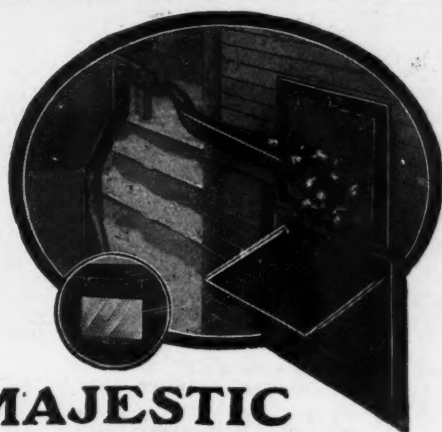
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A Light Basement

HOLLAND FURNACE CO. :: Holland, Mich.

World's Largest Direct Installers of Furnaces.



MAJESTIC Coal Chute

When planning a new home arrange for this modern building necessity in the foundation plans. It keeps the careless coal man from marring and scarring the sides of the house every time he delivers coal. Saves the lawn, walk, flowers and shrubs from being ruined by coal dust and stray lumps.

The Majestic when closed sets flush with the foundation. It has a glass door which serves as a window when chute is not in use for receiving coal and gives splendid light to the basement. The glass is protected when chute is in use by special iron plate. The Majestic is a cellar window as well as a coal chute.

Burglar Proof—Strong—Durable

The Majestic locks from the inside securely and is absolutely burglar proof. It is extra durable, and will outlast the building. It has a heavy steel body, semi-steel door and boiler plate hopper. When open the hopper comes out automatically, catching all the coal, without waste or dirt.

Thousands of owners use them. Contractors endorse them and specify their use in all the new modern structures.

FREE BOOK gives full information regarding Majestic Coal Chutes, Underground and Kitchen Garbage receivers, Majestic Milk Bottle and Package Receiver, Burglar Proof Basement Windows, Store Chutes and other Majestic Specialties.

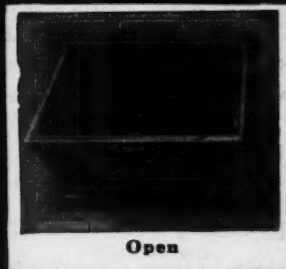
THE MAJESTIC CO., 505 Erie St., Huntington, Ind

CANTON COAL CHUTES

are popular with owners because they protect the Foundations, eliminate Broken Windows, and the accompanying dirt and nuisance every visit of the coal man brings. Canton Coal Chutes open either on the inside or outside—are popular with builders because—They are easy to install, are moderate priced, come in three handy sizes and outlast the building itself. They fulfill the demand for our efficient, substantial Coal Chutes.

Write for our Catalogue No. "B-17" of Builders' Iron Work.

Canton Foundry and Machine Co.
Canton, Ohio



Open



"Colonna" Bath, Plate No. K-64
"Bretton" Lavatory, Plate No. K-580

Kohler Enameled Plumbing Ware—artistic designs—hygienic models

The builder or contractor who selects Kohler Ware for bathroom, kitchen or laundry can always be sure that he is getting the best that can be manufactured, whether the fixture is simple or elaborate.

Every **KOHLER** fixture is cast in one piece

Kohler manufactures but one grade of enameled plumbing ware—the highest.

Although the Kohler Co. has carefully guarded the high grade of its enamel, its activities have not ended here.

The Kohler Co. takes pardonable pride in its other achievements, such as the one-piece casting of all its fixtures, hygienic designs, easy cleaning properties, simple manner of installation, service, etc.

All these things have meant so much to the trade that the Kohler plant has become the largest in the world devoted exclusively to the manufacture of enameled plumbing ware.

The Kohler organization is imbued with the highest ideals which make for enthusiasm and efficiency.

Have you a copy of our catalog? If not, please write us for one.

THE SATURDAY EVENING POST



This is a reproduction of one of our advertisements as it appears in The Saturday Evening Post, Collier's and other national magazines. Kohler advertising will be continuous, vigorous and helpful to the trade.

Kohler Ware is remarkable for its durability. Every Kohler fixture will last a lifetime. Ask your plumber.

"It's in the Kohler Enamel"

KOHLER CO.

Founded 1873

MAKERS OF

Porcelain, Enameled Bathtubs, Lavatories, Sinks, Etc.

KOHLER, WIS., U. S. A.

BRANCHES

Boston New York Chicago San Francisco London

I knew that I myself would jump at the chance to buy one of these portable tubs. The price was not high, yet by getting the exclusive agency for the county I could make \$5 on every sale. So it did look promising. The exclusive county agency appealed to me, too. It gave an added touch of importance and dignity to the business.

Finally I decided that while I had better hold on to my job until I was sure that I could make a go of it—that I would at least make the try. I had never sold a thing in my life, but I believed that it was largely a question of nerve. As I turned out, however, there wasn't much of that required, for the tub actually seemed to sell itself.

After we had received the sample tub and tried it out in our own home we knew that we had discovered a winner. The only time I had to spare was during the evening, and so I decided to use that for the try-out. The first night was dark and rainy and there was a strong temptation to wait for more auspicious conditions, but on a second thought I concluded that I would be likely to find people at home with nothing to do but listen to me, and that decided it. In five minutes the tub was emptied, dried and rolled up into a package but little larger than an umbrella, and again I was impressed with the wonderful convenience.

I didn't use any long-winded speech in trying to make a sale. I simply said that we had discovered a bathtub that was so amazingly simple and convenient that we thought they'd like a chance to get one like it. They seemed amused at first at the idea of carrying a bathtub around like an umbrella, and when in another instant they saw the ready-to-use tub, all set up ready for use, they gave me a look very much like a six-year-old bestows upon the magician who produces a live rabbit from an apparently empty silk hat. And they were just as pleased as they were surprised.

I visited only three houses that night and sold three tubs, or rather three families insisted on buying and I agreed to accept the orders. If this was selling, it certainly had no terrors, and to think that I had earned \$15 in a little less than two hours—almost as much money as my usual six days paid me.

Three more evenings were devoted to the try-out and I had a total of eleven tubs to my credit. So I decided to quit the old job altogether.

In the next few days I got several orders without soliciting them at all. Mrs. Smith simply saw the tub at Mr. Jones' and telephoned me to order one for her. Sometimes when I came home at night my wife would have an order or two waiting for me.

Then I began to pay attention to my opportunities as county agent. Lots of fellows wanted to compete with me when they learned how well I was doing, but Mr. Robinson protected me and referred each of them to me as the county agent. Soon I had a crew of four men working for me in neighboring towns, and as I made a nice, fat commission on their sales, too, it wasn't long before I was enjoying an income eight or ten times greater than my old office job.

The fellows who are working under me are doing almost as well. They range from 18-year-old school boys to one old man just passing the sixty mark. One is a woman, and she, too, is succeeding finely. Every one of them left a meager-pay job and every one of them has succeeded here.

I wish that every man and woman who is tired of low wages, long hours and exacting bosses might follow our example. You can if you only will. Remember, 70 per cent of all the people in the United States are without proper bathing facilities. That spells opportunity for you. Mr. H. S. Robinson, the president of the Robinson Cabinet Manufacturing Company, 798 Factories Building, Toledo, Ohio, tells me that he still has quite a few exclusive county agencies open. Write for full particulars.

Carpenters

Here's an Opportunity to Make Money This Fall

Here's something right in your line—a Chemical Closet that you can sell to a home builder cheaper than a wooden privy and make a bigger profit for yourself. Here's something you can sell at odd times or turn over to your son or your foreman to sell.

RO-SAN CHEMICAL CLOSET



An absolutely sanitary, odorless indoor closet that may be placed anywhere in the house. Abolishes the germ-breeding, outdoor vault. A comfort and a convenience where there is no sewer connection. Germs killed by chemical. Easily emptied as the ash pit of a stove.

AGENTS WANTED

We want one live carpenter-contractor in each town to act as our agent. Good profits for little work. We help you sell them. Write today for complete details.

**ROWE SANITARY
MFG COMPANY**
210-C SIXTH STREET
DETROIT :: MICH.

Ask about the Ro-San Washstand. Running Water (Hot or Cold) Without Plumbing.

It Pays You to Save Money for Clients

Whenever you install a Williamson New-Feed Underfeed Furnace or Boiler you accomplish two things:—

- (1) You do a master job that will continue to advertise you.
- (2) You effect a saving of $\frac{1}{2}$ to $\frac{3}{4}$ in coal cost for your client.

All of which means that you will get more new business on the strength of it.

WILLIAMSON CUT
NEW-FEED COAL BILLS
UNDERFEED $\frac{1}{2}$ to $\frac{3}{4}$
Furnaces and Boilers

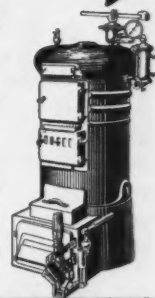


For, remember, this saving of $\frac{1}{2}$ to $\frac{3}{4}$ coal cost is guaranteed the Underfeed way.

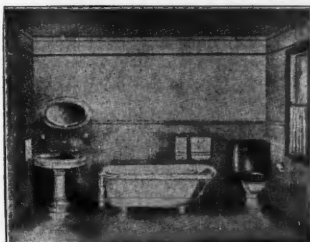
Write today for helpful book and information regarding free plans for builders and owners. No cost. No obligation.

Write today—right now.

The Williamson Heater Co.
(Formerly Peck-Williamson Co.)
447 Fifth Avenue •
CINCINNATI, OHIO



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When in the market for Plumbing, Heating and Pneumatic Waterworks Supplies and you wish to

Save 20 to 40%

on every article, write for my free illustrated Catalog. The only house that sells first-class guaranteed goods at wholesale prices direct. Shipments are promptly made from a very complete stock. Small orders are as carefully handled as large ones.

B. B. KAROL, 800-802 S. Kedzie Ave., Chicago, Ill.

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MANUFACTURER

J. Hardin Co., J. J. Lavin, Pres.



No 1 \$9.60



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Install Your Own Plumbing and Heating

Get our catalog No. 41A—contains complete heating plants, heating goods of every description, bathroom outfits, sinks, roughing-in goods, pipe, fittings, valves, etc., water pressure systems and lighting plants. In fact absolutely everything in high grade plumbing and heating supplies exclusively at wholesale prices. Any handy man can install our goods with our free, easy installing plans. \$400,000 plants behind our guarantee. **WRITE TODAY**

No. 4—\$36.00 up

J. HARDIN CO. 40 yrs. at 4532-42 Cottage Grove Ave. **CHICAGO**



A HOT AIR FURNACE

For Less Than
\$50 Complete

For 5 and 8 Room Dwellings

An Unheard of Price and
a Most Remarkable and
Indestructible Furnace.

No Pipes

No Lost Heat

**AMERICAN BELL AND
FOUNDRY CO.**

NORTHVILLE :: MICH.

HESS MEDICINE SANITARY LOCKER

The Only Modern, Sanitary STEEL Medicine Cabinet



or locker, finished in snow-white, baked everlasting enamel, inside and out. Beautiful beveled mirror door. Nickel plate brass trimmings. Steel or glass shelves.

Costs Less Than Wood

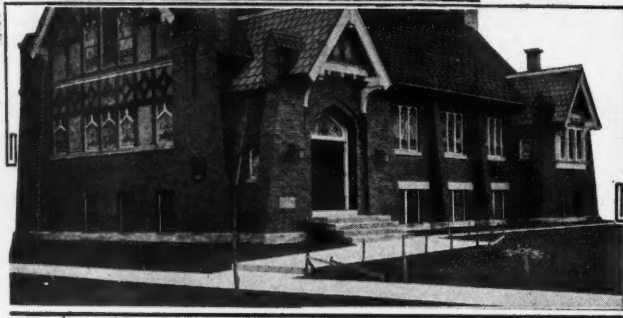
Never warps, shrinks nor swells. Dust and vermin proof, easily cleaned. Should be in Every Bath Room. Four styles—four sizes. To recess in wall or to hang outside. Send for illustrated circular.

**HESS, 920L Tacoma Bldg.,
CHICAGO**

The Recessed Steel
Medicine Cabinet. Makers of Steel Furnaces

Free Booklet

SLATE FOR ROOFING



Slate Pointers, Chapter 3

Starting and Finishing—The lap is the amount the tail of the third course laps over the head of the first course.

In slating, as in shingling, we commence at the bottom and work up. The first course, called "undereaves," is short. These should be made long enough to be overlapped by the second course 2 or 3 inches, according to the lap given the rest of the roof. On a roof where a 3-inch lap is given, the undereaves should always be $1\frac{1}{2}$ inches longer than one-half the length of the slate. The slate in the first course is put on over the undereaves, the lower end even with the lower end of the undereaves, and the slate in the second course should overlap the undereaves 2 or 3 inches, as the job may require. The third course should overlap the first course the required lap and the balance so on throughout the roof, but, as the work approaches the ridge, the proper width for the last course may require a little variation in the lap to finish in good shape.

A Few Pointers—A "square" of slate, the standard of

measurement by which roofing slate is sold, is a sufficient number of any size of slate to lay 100 square feet of roof, allowing 3-inch lap.

Roofing slate is sold either f.o.b. quarry or f.o.b. destination, at buyer's option, but, when ordering, roofers should state their preference, so that invoices can be properly rendered.

To most railroad points the minimum carload weight is 40,000 pounds. Any amount can be loaded up to 100,000 pounds.

Take up slate roofing. It is a "money-maker." A profitable, growing slate roofing business can be established anywhere.

Slate Roofing Tools—The only tools required for slate roofing are as follows:

The **hammer** is the tool most used, and, in every way the most necessary. This combines four tools in one: Hammer for driving nails; claw for pulling nails; knife for cutting slate; point for punching slate.

The **stake** is the next tool in importance and is used to stick into the roof, sheathing or scaffolding plant for a rest to cut and punch slate on, and is also used as a straight edge to mark slate, when cutting and fitting around chimneys, dormers, hips and valleys.

The **ripper** comes next, and is used to take out broken slate in repairing, and must be of the best steel and temper to stand the severe strain of cutting or breaking nails.

A **slate dresser** is a convenient but not an absolutely necessary part of a roofer's outfit. Same is used for punching and trimming slate, is a great time and money saver and does not cost much.

A slater usually carries a pair of **tinner's snips** to cut metal flashings, a **2-foot rule**, a **nail pouch** and a **chalk line**. This completes the outfit.

SLATE WE HAVE WHAT YOU WANT

**In Roofing Slate. Slate Blackboards
Structural and Plumbers' Slate**

SATISFACTION GUARANTEED IN QUALITY AND PRICE

ASK FOR DELIVERED PRICES

J. K. HOWER, Station, C., Danielsville, Pa.

R. J. KICHELIN, Sales Agent



Indestructible Roofing

Cover your buildings with Montross Metal Shingles and save yourself time, money, worry. Economical in price and easily laid. Our booklet, "The Best Roof Under The Sun" will make you a roofing expert. Free on Request.

AGENTS—MAKE MONEY

On our profit sharing inducement to all reliable live wire dealers. Write for information, how our agents are growing rich handling Montross Metal Shingles. Big demand. This is your chance. Don't overlook it. Testimonial letters and affidavits cheerfully given.

MONTROSS METAL ROOFING CO., 102 Erie St., CAMDEN, N. J.

ROOFING SLATE SINCE 1869

Miners, Makers and Shippers of all Styles and Colors of Roofing Slate. Write for Prices.

RISING & NELSON SLATE CO.

Main Office: West Pawlet, Vt.

Branch Offices:

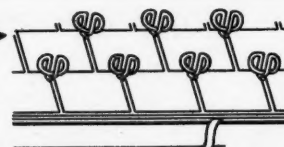
1140 Singer Bldg., New York City. 4 Post Office Sq., Boston, Mass.
Office and Yard, 2554 W. Harrison St., Chicago, Ill.

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Applied to a Roof

prevent snow from sliding, tearing off and damaging gutters and eaves. They also eliminate the danger of snow falling on passers-by. Made in 3 styles for new and old roofs. Let them demonstrate their efficiency this winter. Write for Circular and **FREE SAMPLES**

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STRUCTURAL SLATE BLACKBOARDS

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38 Park Row New York

Quarry Operator

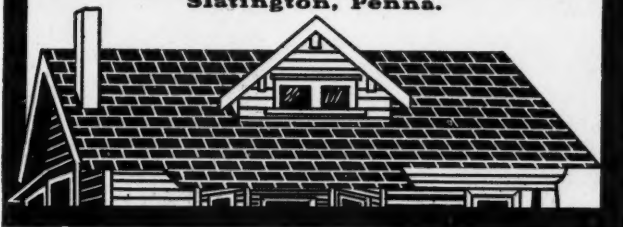
BLACK, GREEN, PURPLE, RED

Booklet, Samples and Prices on Application

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

UNFADING ROOFING SLATE and Slate Blackboards

Best to be had and made in
Slatington — Buy from us
Slatington-Bangor Slate Syndicate, Inc.
Slatington, Penna.



NOW THE QUESTION IS -

We all know that slate is the supreme roofing, now the Question is—which Slate is the Best? We can't tell you the full story about Genuine Franklin Tunnel Slate here, but if you send us your name and address we'll tell you all about this famous Slate and send you FREE Samples, too. It will pay you, and help increase your roofing business.

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Write Today
SLATINGTON
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THE ROCK OF AGES CLEFT FOR YOU

RED GREEN
SHELDON'S
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SLATE

THE ROOF FOR AGES ALWAYS NEW

ECONOMICAL — ARTISTIC — FIREPROOF

Outlast the building. First cost, only cost. The only roof you can afford to consider for a permanent investment. Artificial substitutes bring endless expense for upkeep. Post a postal and get posted.

F. C. SHELDON SLATE CO., Granville, N. Y.

Only A Penny

Invested in a Postal
will bring you full in-
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Blue Valley Unfading
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World's Fair Premium Slate Blackboards.

Electrical and Structural Slate. Get in touch with us today.

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YOU'RE MISSING A BET

MR. CARPENTER
IF YOU ARE PASSING UP THE
METAL SHELTER GAME



IT'S THE BEST BET YET

The METAL SHELTER Agency gets you more business, more customers, more work for your men, more money for you, better and quicker results, and—get this—

A REAL BUSINESS OF YOUR OWN

Don't wait. Get the agency for Metal Shelter Garages, Cottages, Bungalows, Stores, etc., before the other fellow beats you to it. You can sell 'em, and it's a cinch to set 'em up—a building a day. **THINK!** Investigation costs you nothing. Write right now.

Metal Shelter Co., Inc.

Whitehall Bldg. -:- New York City

"PLAY SAFE"

As a business man, you want to be sure that no competitor can offer your townsmen a better roof than you.

You cannot decide that question finally until you know more about—not only our

Genuine Bangor Slate

—but also our method of co-operating with you in securing for you the cream of the roofing trade of your town.

The coupon brings particulars without obligation on your part. Mail it today.

Genuine Bangor Slate Company

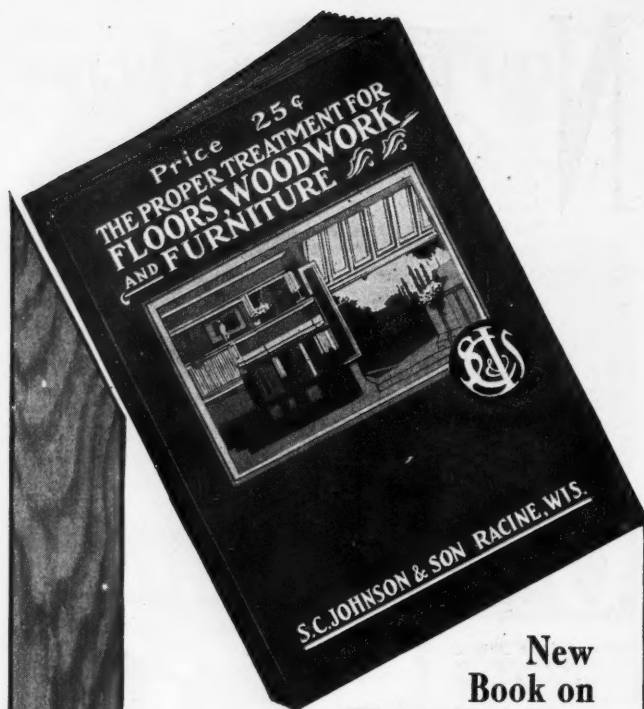
Quarries: Bangor, Pa.

EASTON, PA.

GENUINE BANGOR SLATE CO., Easton, Pa. October, 1915

Please send information.

Signed
Address
City..... State.....



New Book on Wood Finishing

EVERY architect, contractor and builder is entitled to one of these new books free for the asking. It is a valuable handbook on interior finishing, beautifully illustrated in nine colors.

It tells how to finish inexpensive soft woods as beautifully as hardwoods and gives complete specifications for finishing woodwork and floors with

Johnson's Wood Dye

These dyes are not pore-filling varnish stains but coloring matter that penetrates deeply into the wood without raising the grain.

Johnson's Prepared Wax

is the most extraordinary polish for interior woodwork and floors. It gives a hard, dry, glass-like surface that does not collect dust.

If you are not familiar with Johnson's Wood Dyes and Prepared Wax we shall be glad to send you samples for experimental work or finished wood panels showing the various shades of Johnson's Wood Dye.

ACB-10
Please send me free and postpaid my copy of your new 25c Instruction Book, "The Proper Treatment for Floors, Woodwork and Furniture."

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Fill out this coupon and mail to

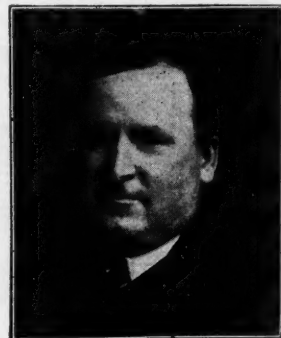
S. C. JOHNSON & SON
"The Wood Finishing Authorities"

RACINE

WISCONSIN

Chance for Autumn Profits

Do you want to earn some easy money during the fall and winter months now coming on? If you do, Mr. Chas. J. Parsons, whose picture is here presented, claims he can show you the way. He is general manager of the Diamond Metal Stamping Co., of Columbus, Ohio, exclusive manufacturers of the Diamond Metal Weather Strips, and a recognized authority on that article. He has built that concern up from a very small one to one of the largest of its kind in this country. He attributes his success to the fact that he has been able to prove to the contractors and carpenters that he can show them a bigger per cent of profit on the amount invested than they can earn in their own particular business. He does not ask them to invest a dollar in his proposition until they have actual orders for the goods, and he tells you how to get them.



Chas. J. Parsons.

He has already established 365 live wire money making agencies in this country and Canada, and he wants 1,000 more. He states that he has some very desirable territory open for the right men and wants contractors and carpenters to write him for his agency proposition. He claims to be able to show you how you can turn your idle time into good, shining dollars with only a small effort on your part.

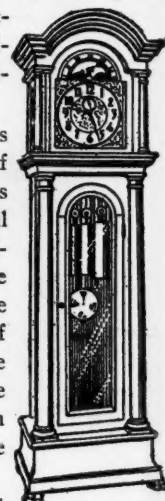
A letter directed to him personally, care of the above company, will have immediate attention.



Grandfathers' Clocks and How to Build Them

Last winter the American Chime Clock Co., 1655 Ruffner St., Philadelphia, Pa., offered to readers of the AMERICAN CARPENTER AND BUILDER blue prints, construction details and other information for the successful construction of grandfather's clocks. This offer was quickly accepted by a great many carpenters and builders, who have been very successful in building clocks of this character.

As a means of bringing in extra dollars during the winter months, the building of these clocks offers a big field for carpenters and woodworkers. A fine hall clock, tall and dignified, is an interesting piece of furniture, and can be easily made; the expense is small considering the value of the piece when it is finished. It is a popular piece of furniture, makes an elegant gift, and if one is putting in his spare time at work he hopes to make a profit on, it will return more than any other piece of furniture he may select.



A fine hand made case requires a good movement. The American Chime Clock Co. **Make This Hall Clock.**

make a specialty of supplying first class works for hand made clock cases. This includes movements for chiming clocks, cuckoo clocks, mission clocks, musical clocks, etc.

To help out amateur clock builders, the American Chime Clock Co. are prepared to furnish blue prints, giving full details of construction and list of stock required. Circulars and full particulars concerning these blue prints can be obtained by addressing the company at 1655 Ruffner St., Philadelphia, Pa.